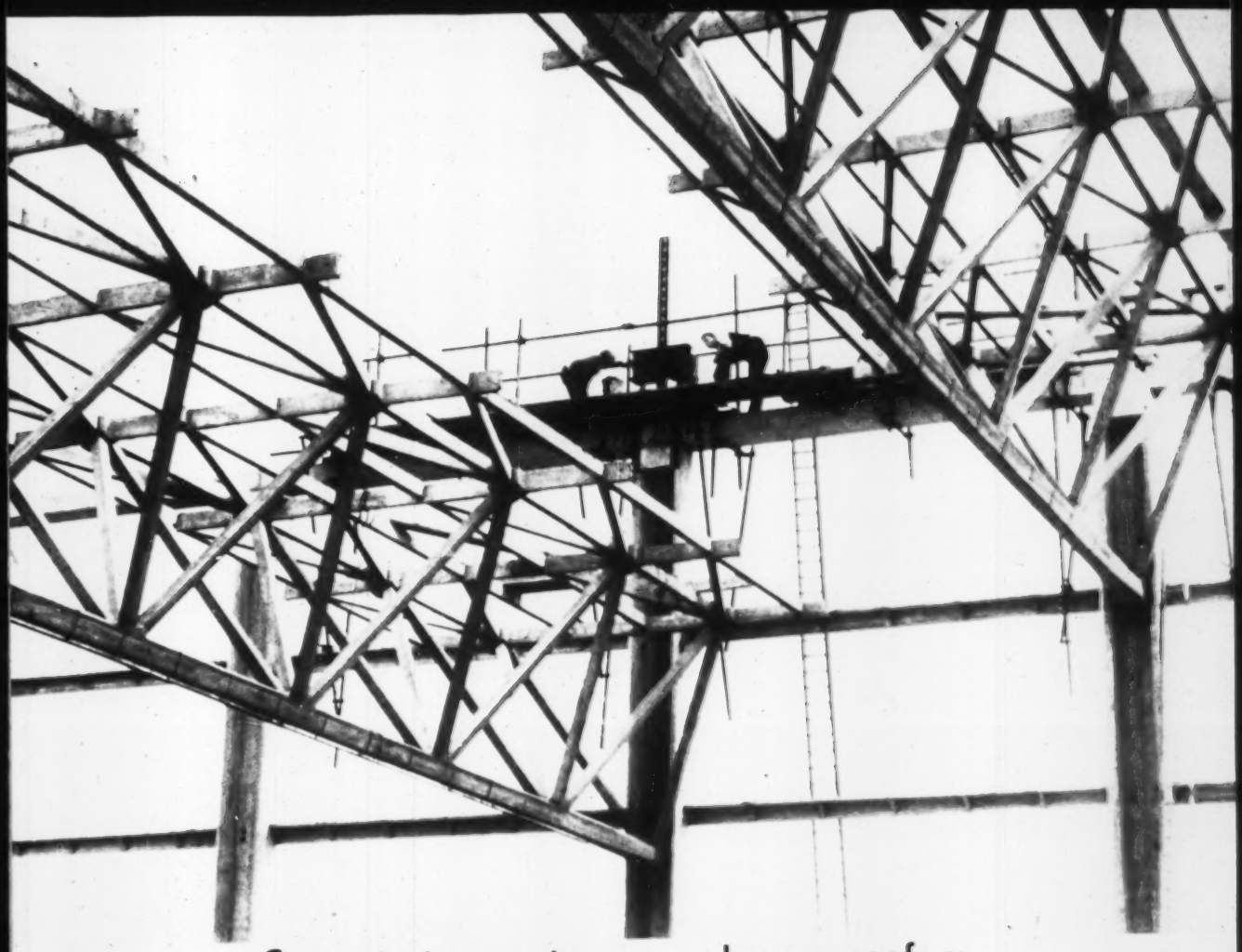
ENGINEERING NEWS-RECORD



Concrete trusses to carry a hangar roof p.32

A McGRAW-HILL PUBLICATION

STEVENS RICE
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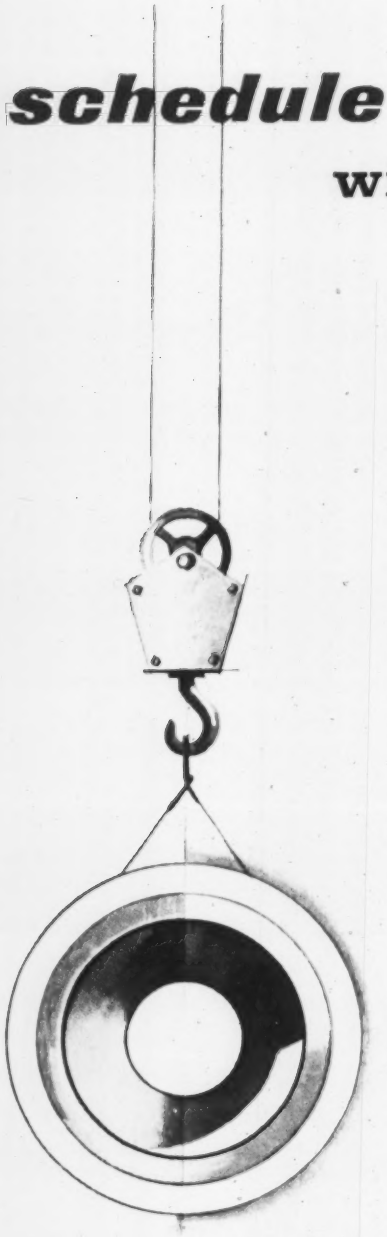
on schedule every time

with Vulcan concrete pipe!



Choose concrete pipe. Get rugged, rock-bound strength. Get pipe unerringly true to specification. Scores of other advantages.

Choose Vulcan. Get highest quality all down the line.

Get *service* over and above your expectations. 100% reliable, on-schedule delivery from the nearest of *eight* strategically located Vulcan plants that blanket the South. Plants that house pipe inventories big enough for any need . . . anytime . . . anywhere.

Choose diameters from 6 to 144 inches; lengths from 4 to 16 feet. Or any other specifications you name.

Get the savings that result from this kind of service.

Call your nearest office of Vulcan Materials Company for full information and technical assistance. It's listed in your telephone directory.

Vulcan Materials Company also produces aggregates, surfacing materials, ready-mixed concrete, prestressed concrete members, concrete blocks, chemicals and metallics.

CONCRETE PIPE DIVISION

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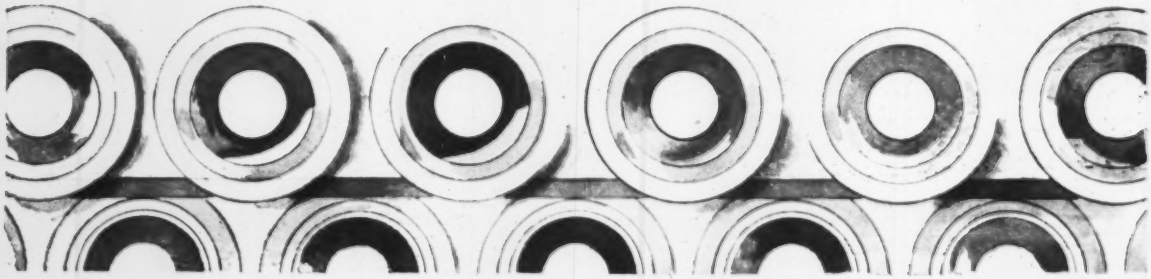

The scene is South Broad Street, with City Hall in the background.

Laying steel pipe in PHILADELPHIA: 1907

1959—Installing 60-in. tar-enameled Bethlehem steel pipe in Northeast Philadelphia. Contractor: Armour Excavating, Inc.

When the city photographer snapped this pipe-laying crew on Broad Street in 1907, the city was installing nearly 27 miles of steel pipe, in 48-in. and 36-in. diameters. Most of that pipe is still in service—after more than 50 years on the job!

Matter of fact, in Philadelphia they have for many years specified steel pipe for most mains over 30 in. ID.

Today a network of over 3,000 miles of pipe lines supply upwards of 350 mgd to a population now well over two million.

Many of the nation's largest cities, like Philadelphia, use steel pipe for major, large-diameter water mains.

For steady, reliable service, for high flow capacity, for leak-proof joints, for long-range economy—specify tar-enameled steel pipe. Your nearest Bethlehem sales office would be happy to give you full information.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

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EIGHTY-FIFTH YEAR OF PUBLICATION

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ENGINEER: H. P. Peterson, City Engineer, South Euclid, Ohio

CONTRACTOR: D. Rossi Construction Co., Cleveland, Ohio

PIPE: United States Elliptical Concrete Pipe, manufactured at Factory 4, Palmyra, Ohio

LESS EXCAVATING REQUIRED — Pipe is available in round equivalents from 30″ to 90″, and for installation on *horizontal* axis where headroom is lacking, or *vertical* axis where trench width is limited.

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Contact us to arrange for United States *Elliptical* Concrete Pipe on your next "narrow," or "shallow" trench project. Nine U. S. — Universal plants and yards are alert to serve you promptly.

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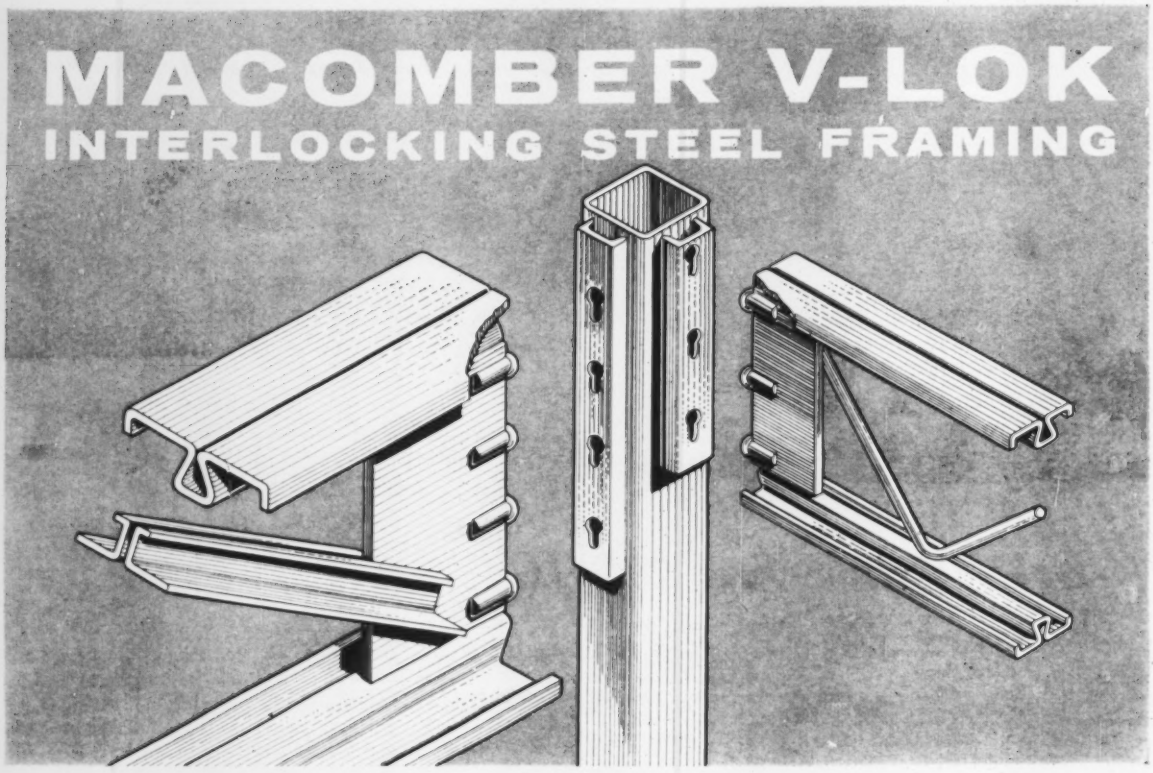
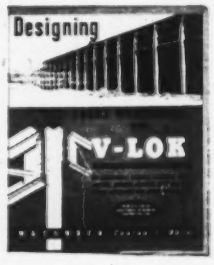


Meets all requirements of warehouse designers, builders, owners

Macomber standardized framing plans save time and steel. Macomber one-source supply keys to your structural schedule. Macomber engineered flexibility adapts to design variables, collateral materials and future expansion. Rigid V-LOK connections permit frame erection, ready for decking and interior finishing, weeks ahead of ordinary methods. Lower your next warehouse investment with V-LOK.



For the complete, money-saving V-LOK story . . . SEND FOR MANUAL

MACOMBER

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HALF the world is half asleep! Men who could be making *twice* their present salaries are coasting along, hoping for promotions but doing nothing to bring themselves forcefully to the attention of management.

They're *wasting* the most fruitful years of their business lives . . . throwing away thousands of dollars they may never be able to make up. And, oddly enough, they don't realize—even remotely—the tragic consequences of their failure to forge ahead while time is still on their side.

Engineers and other technically-trained men are particularly prone to "drift with the tide" because their starting salaries are reasonably high and promotions come at regular intervals early in their careers. It isn't until later—too much later in many cases—that they discover there is a definite ceiling on their incomes as technicians.

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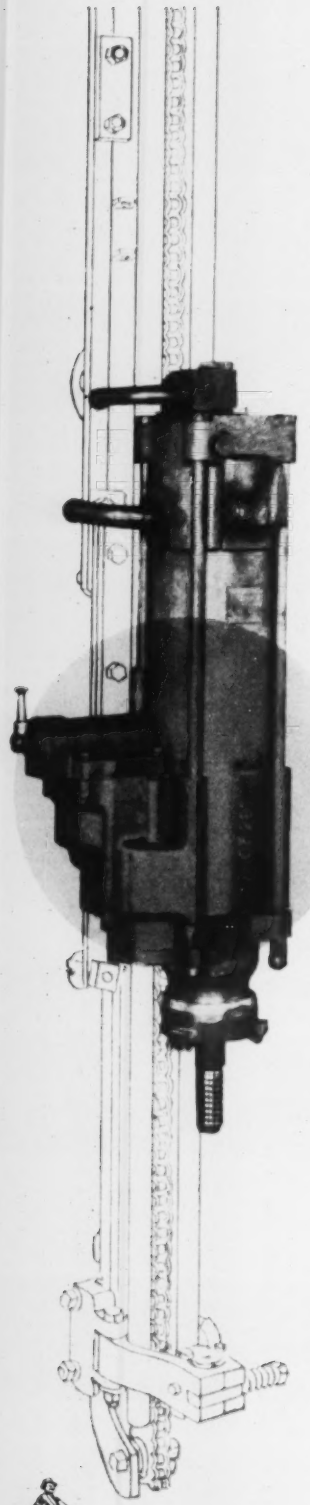
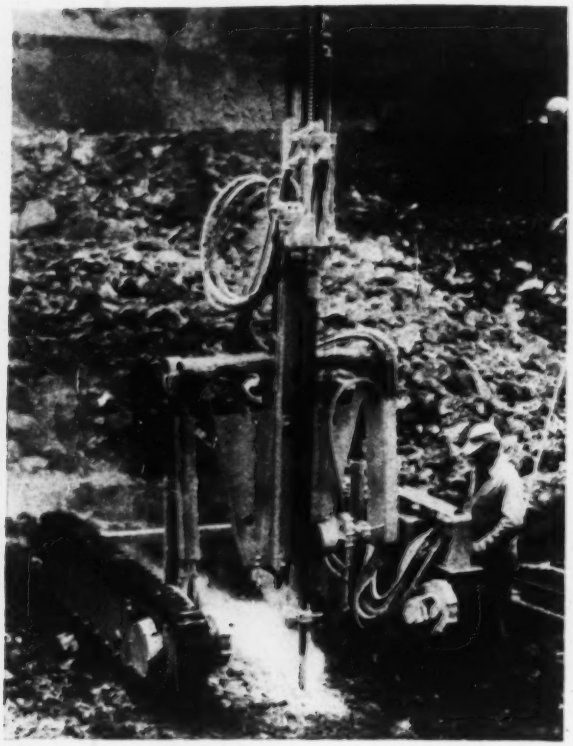


The 450-DR is available on several self-propelled carriers, including the completely automatic TDM Trac-Drill shown at the right.



Another Joy First

The 450 DUAL Rotation Drill

- 25% Higher Drilling Speeds
- Faster Steel Changes

In competitive demonstrations of 4½" bore drills, the new Joy 450-DR not only drilled faster, but also finished blastholes which the conventional reverse rotation machines could not bottom.*

Dual Rotation, which made this superior performance possible, is provided by a powerful vane-type air motor geared to the chuck. It provides a booster to normal drilling rotation, and gives extra rotation power while actually reducing the strain on the rifle bar.

Dual Rotation will also cut your costs because (1) there is no hammering action while coupling or uncoupling—drill steel threads, couplings and striking bars last longer; (2) all four pawls in the 450-DR are used only for forward rotation, not two for drilling and two for reversing—excessive pawl wear is eliminated; and (3) with Dual Rotation, reversing is not rifle bar actuated, therefore rifle nuts cannot back off—less downtime.

Let us prove the superiority of the new Joy 450-DR Drill. Your nearest Joy Office or Distributor will be glad to arrange a demonstration of this remarkable new drill.

*Competitive test results available upon request.

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Heavy jobs like this are easy for the big new Cat No. 14 Motor Grader, working here on a section of Interstate Highway System near Corsicana, Texas. Owner: T. L. James & Co. Inc. and R. W. McKinney, Corsicana.

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The first and only Turbocharged Motor Grader, the big No. 14 delivers high production at low operating cost both on the roughest and finest grading work. It packs 150 HP and 29,280 lb. heft to handle heavy work quickly. Operates at the highest practical working speeds with either a 12-ft. or 14-ft. moldboard. You don't have to pick "spots" to make it pay off. You can use it profitably on many different applications such as:

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Some of its many new features are shown here. For the complete picture, see your Caterpillar Dealer listed in the Yellow Pages of your telephone directory. Ask him for a demonstration. Pick the toughest applications you can find—see for yourself how the big, versatile No. 14 can handle any kind of hard work!

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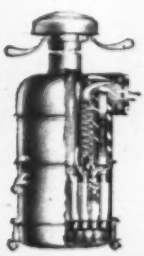
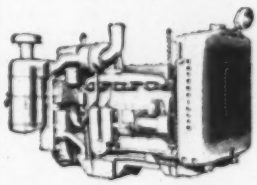
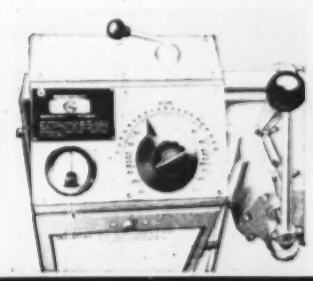
NEW DRY-TYPE AIR CLEANER. Removes 99.8% of all dirt from intake air during **every** service hour. Can be serviced in 5 minutes. Cuts maintenance time by up to 70%. Extends engine life.



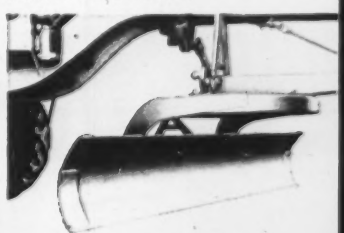
NEW TURBOCHARGED CAT ENGINE. Turbocharger utilizes waste energy from engine exhaust to increase efficiency and economy. Engine provides high torque rise that pays off on the job.



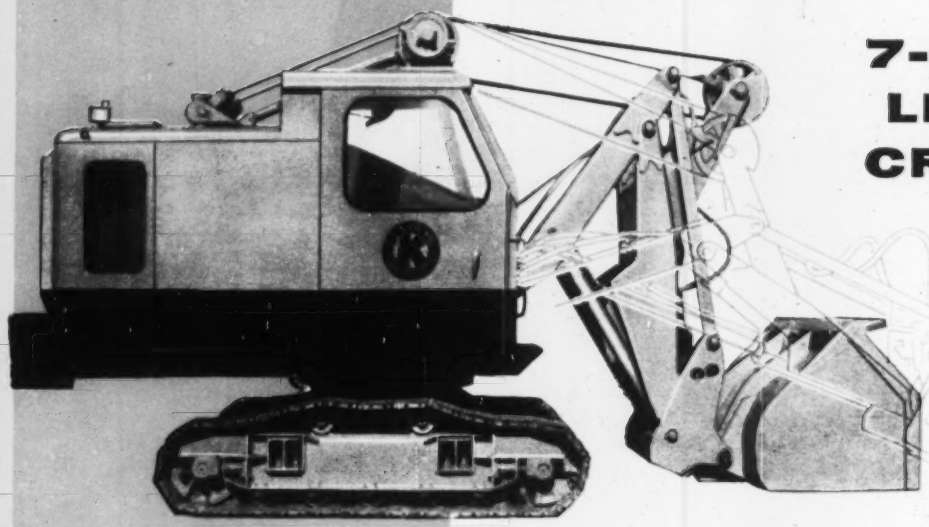
PRECO AUTOMATIC BLADE CONTROL. Optional. Operator selects desired slope on dial. Now transistorized, unit automatically controls blade slope within $\frac{1}{8}$ in. in 10 ft.



HIGH THROAT CLEARANCE. New design permits increased clearance between moldboard and circle for greater loads. Also extra-strong frame, circle and drawbar.



KOEHRING® SKOOPER



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SKOOPER'S wide bucket can cut evenly up a sloping bank as well as on a level grade. Crawlers can be headed into cut or parallel with bank.

Koehring SKOOPER has ample discharge height — easily loads over side or end of truck. 3 types of interchangeable buckets (rock, rehandling, and general-purpose) assure big payloads in all kinds of material . . . on all types of jobs.

from "stand-still" position

Here's a new concept in excavating and material-handling equipment that combines big loader capacity with shovel efficiency — top production *with low maintenance.* Revolutionary new Koehring SKOOPER gives you a *full-revolving* loader for fast "stand-still" digging and loading. Here's the way it works: Powerful action of the twin hydraulic rams crowds the 2-yard bucket along a smooth 7-foot level cleanup without traveling from "stand-still" position — or cuts at any angle of bank slope. SKOOPER then makes a full-revolving swing, dumps load fast and clean from roll-over bucket. Then, it swings back, starts next cycle — *all without traveling.* SKOOPER'S unique "stand-still" cycle not only eliminates the usual drive-in back-out waste motion, but also cuts high maintenance costs of constant skid-turn operation. It works in tight quarters inaccessible to ordinary drive-in back-out-and-turn loaders.

See SKOOPER in action — stop-watch its fast cycle time — see for yourself how many tons it moves per hour with only 70 hp. Also check low maintenance costs and unique excavator-crane convertibility. Call Koehring distributor.

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Reader Comment

Code Requires Supervision

SIR—Since your editorial, "Design Against Sidesway" (ENR May 21, p. 128), you have printed letters from engineers all over the country concerning various aspects of building failures. The most recent were three letters in the July 16th issue.

As the town engineer of Oyster Bay, N. Y., where the collapse of a building in Westbury occurred (ENR May 14, p. 29), I would like to discuss several points raised in these three letters.

Mr. Rowe's comments on recent design trends in industrial and commercial buildings are well taken. It is my belief that too many engineers are allowing builder's concern over cost to influence their judgment. The result is construction that has been lightened beyond the reasonable dictates of safety.

The three points in Mr. Rowe's conclusion should certainly be acceptable to all engineers. The so-called "simple" buildings, which apparently don't receive anything approaching the consideration given to multistoried buildings, can nevertheless be just as disastrous in the event of a collapse. There is, therefore, no excuse for approaching the design of smaller buildings with less care and study than would obviously be applied to a monumental structure.

Our building code has just been amended (ENR Aug. 6, p. 26 & 124) to require legally competent supervision of construction for all buildings with a total floor area greater than 10,000 sq ft.

On reading Professor Chinn's letter, I infer that he approves the notion of obtaining stability from such sources as curtain walls and partitions that have not been specifically counted on in the design of the frame. It is my opinion that one of the factors contributing to deficient design is just such reliance on an intangible and unreliable support.

I also question Professor Chinn's contention that building departments should accept the blame for faulty structural design unless there is a specific code violation. In the continuous struggle for adequate professional recognition, which is given so much lip service in engineering literature, such an attitude only does a disservice to the profession. Unless a professional engi-

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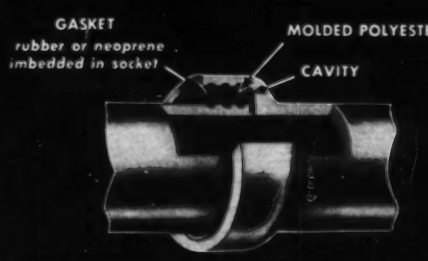
Presto SEAL

As the name implies, Presto-SEAL is a vastly improved vitrified clay pipe that joints to a perfect, permanent, flexible seal in seconds . . . can be laid in upwards to 50% less time than needed with old fashioned pipe jointing methods. Simply lubricate the spigot end of Presto-SEAL with Presto-LUBE . . . align the bell and spigot . . . then push the joint together by hand. You actually *feel the seal!*



Presto SEAL COMPRESSION JOINT

Rigid polyester castings, and a flexible permanently imbedded gasket, produce a controlled uniform compression throughout the full circumference of the joint.

ASSEMBLES FASTER WITHOUT SPECIAL TOOLS

STOPS INFILTRATION

BUILT-IN SAFEGUARD AGAINST SHEAR LOAD ACTION

AVAILABLE IN SIZES FROM 4" TO 36"

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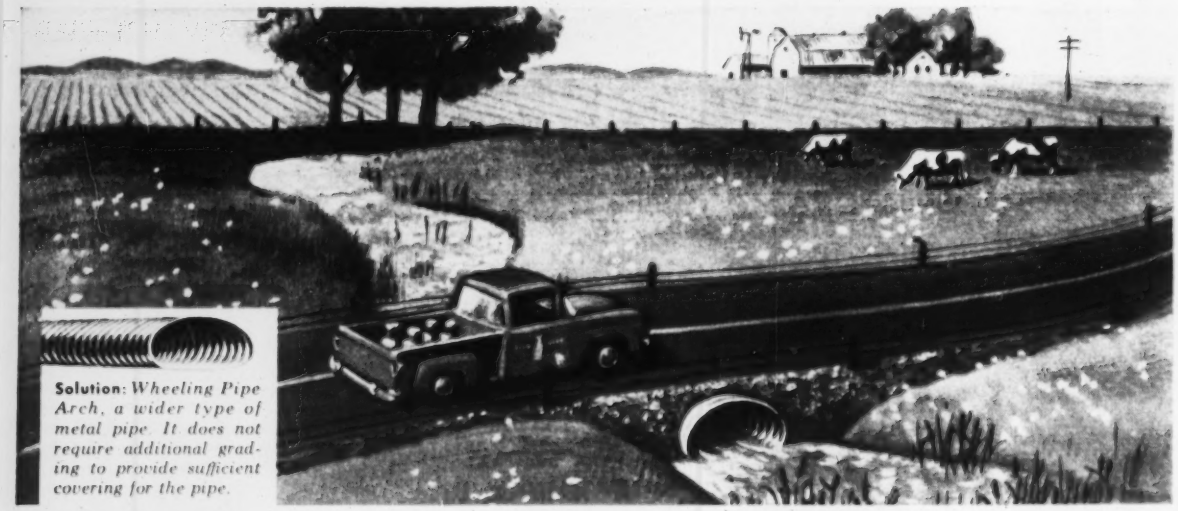
TORONTO OHIO • U.S.A.

Write for complete information, including descriptive literature PS-101 or contact your KAUL representative today.

METAL CULVERT PIPE BY WHEELING

Problem: *How to channel the flow of this shallow, meandering creek? Standard round pipe would take too much headroom.*

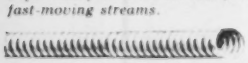
Headroom limited?



Solution: *Wheeling Pipe Arch, a wider type of metal pipe. It does not require additional grading to provide sufficient covering for the pipe.*

Use Wheeling Pipe Arch for fast drainage!

Large-diameter Wheeling Culvert Pipe—easily controls normal flow of fast-moving streams.



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Particularly effective for shallow streams, Wheeling Pipe Arch assures fast, efficient water flow. That's because it has a wide, comparatively flat base that permits more rapid drainage than round pipe of equal area. And it has the same toughness and durability that made other types of Wheeling Culverts famous.

Wheeling Metal Culvert Pipe or Pipe Arch, in copper-bearing steel or copper-bearing pure iron, plain galvanized or bituminous coated (with or without paved invert) is available in a wide range of gauges and diameters.

Write or call your nearest Wheeling warehouse, culvert plant, or sales office. Wheeling Corrugating Company, Wheeling, West Virginia.

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Immediate delivery on all stocked items from these warehouses: *Boston, Buffalo, Chicago, Columbus, Detroit, Kansas City, Louisville, Madison, Minneapolis, New Orleans, New York, Philadelphia, Richmond, St. Louis.* Sales Offices: *Atlanta, Houston*

neer's integrity and competence is above question, we will never be accepted as a profession by the public.

As a consulting engineer, I have never, and will never, permit an unlicensed individual to make changes in my designs. However, were I to attempt to share part of the blame for a faulty design with a building department, I would, in effect, be agreeing that part of my professional responsibility was shared by an unlicensed plan examiner. I don't believe that the majority of consulting engineers would accept this concept of professional responsibility.

Mr. Bumann has advanced the possible cause of the collapse at Westbury. The article from which he obtained his information, of necessity, did not describe the structural framework in detail. If it had, Mr. Bumann would undoubtedly have realized that, since the building was symmetrical, the type of column deflection he mentions would have occurred in equal and opposite directions on both sides of the building. In any event, the collapse was in the direction at right angles to the girders, and, hence, this was not a factor.

I believe that the problem of obtaining information on the causes of structural failures has a solution. I hope that my colleagues will express their opinions, ideas and suggestions to this column in the near future.

HORACE A. McALLISTER, JR.
Town Engineer
Oyster Bay, N. Y.

► In editing my comment regarding collapse in steel frames (ENR July 16, p. 7) you added three words which were not in the letter and which are not in accordance with the thought I wished to convey, but rather tend to confuse the issue.

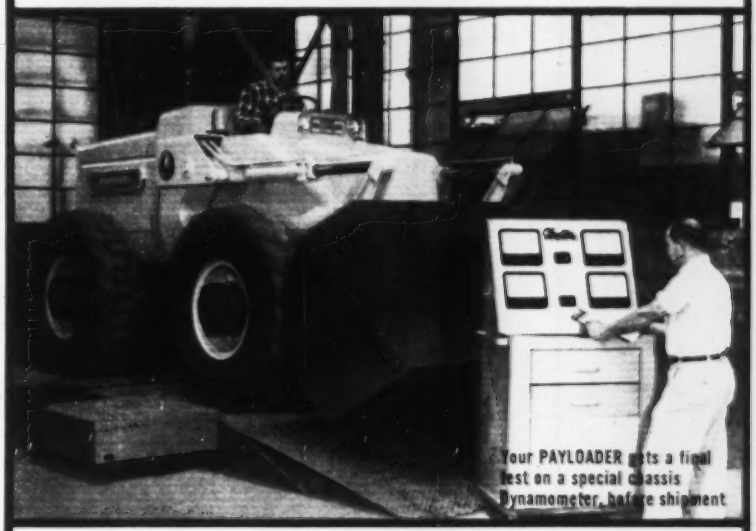
At the end of the next-to-last paragraph where I said that "every interior column would still be a point of possible failure because of lack of adequate support at the top" you have added the words "of the wall". With the walls in place and with a properly constructed roof there would be no lack of lateral support at the top of the wall. The windward walls of most one-story buildings are sustained by the lateral support they receive from the roof slab, which acts as a horizontal girder and transmits the wind load to the walls that are parallel to the direction of the wind.

The apparent lack of adequate lateral support to which I wished to call atten-

ENR Index Is Ready

ENR's index of editorial content for January through June is now being mailed to those on the index mailing list. Copies of the 1958 index are also available. The index is free. To get your name on the mailing list, write: Indexing Department, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

Here's why you get



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1. Distributor Experience: The oldest, largest, most experienced and best equipped organization in the rubber-tired tractor-shovel field sells and services the 'PAYLOADER' line.

2. Design Experience: Almost every "FIRST" in both two and four-wheel-drive rubber-tired tractor-shovels is the result of HOUGH pioneering.

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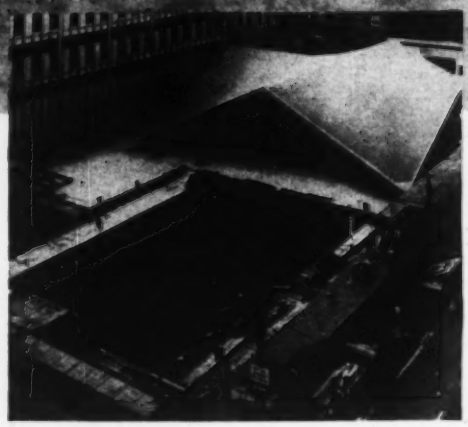
ENR 7.8.2

Cool cushions ease skating rink pipe into place!



General Contractor: Webb & Knapp Construction Corp., Denver, Colorado

An unusual feature in the construction of the Zeckendorf Plaza Skating Rink in the Court House Square Development, Denver, Colorado, was the method used to lower the header after the pipe had been welded to it. To protect the pipe from damage, 300-pound blocks of ice were placed under the header so that it settled gently into the header trench as the ice melted.

For this project, National Tube supplied 28,000 feet of 1" extra-strong USS National Pipe, as well as the 8" Seamless Pipe used for headers which were spaced 63' 10" apart. The rink covers 7,071 square feet—an area that required 442 runs.

If you need top-quality steel pipe for ice skating rinks, snow-melting and radiant-heating installations, or for all types of building and industrial applications, be sure you specify USS National Pipe. *Why?* Because National Pipe gives you the best possible investment by giving you the best possible service per dollar of cost. If you'd like further information or immediate assistance with your pipe problems, write to National Tube Division, United States Steel, 525 William Penn Place, Pittsburgh 30, Pennsylvania. *USS and National are registered trademarks*

"The world's largest and most experienced manufacturer of tubular products"

National Tube Division of United States Steel

Columbia-Geneva Steel Division, San Francisco, Pacific Coast Distributors
United States Steel Export Company, New York

tion was not at the top of the wall but at the top of every interior column.

The points I wished to make are:

- All columns require adequate lateral support at each end.
- All beams and girders require lateral support for both flanges at points of support.

These points are well covered by the AISC Manual and Specification. With conventional framing where the beams are framed to the webs or flanges of the columns, these requirements are provided automatically.

But where girders pass over the top of the columns and beams rest on the upper flanges of girders, special provision to provide lateral support should be made. In addition to the above requirements the compression flanges of beams and girders require lateral support at intervals no greater than the L_u of the section used, or the allowable stress must be reduced. For beams and girders that are not continuous at the points of support the upper flanges are in compression and usually have lateral support from the floor or roof system without special provision. However, if the beams and girders are continuous the lower flanges are in compression at the supports and for this reason alone require lateral support at these points.

If the distance from the point of support to the point of contraflexure is greater then L_u additional lateral support is required for the lower flange or the allowable stress must be reduced.

The recent trend to design beams and girders as continuous instead of a simple spans has introduced new problems and requirements in regard to lateral support and where these requirements are not recognized and met we may expect more failures. For continuous beams and girders the requirements for lateral support are practically the same whether the design is by the elastic method or by the plastic method.

C. S. BUMANN
Consulting Engineer
Springfield, Mo.

For Your Calendar . . .

Irrigation and Drainage Division, American Society of Civil Engineers and American Meteorological Society, joint conference, Albany Hotel, Denver, Colo., Aug. 27-29. Write: Robert L. Mueller, P. O. Box 2170, Denver 1, Colo.

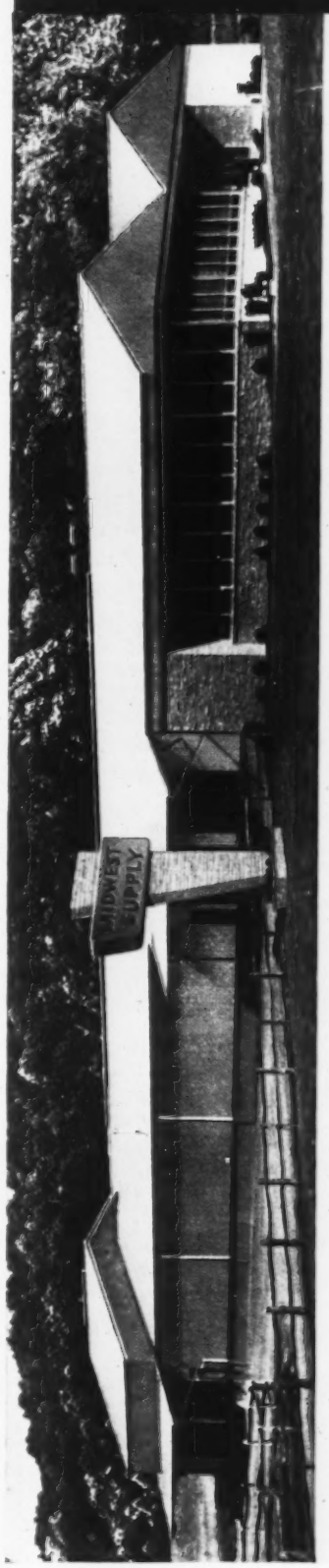
Wood Industries Conference, Portland, Sept. 10-12. Write: Louis P. Growney, Arrangements Committee, c/o Pacific Power & Light Co., 104 Public Service Building, Portland 4, Ore.

Institute of Traffic Engineers, annual meeting, Commodore Hotel, New York City, Sept. 13-17. Write: Institute office, 2029 K St. N. W., Washington 6, D. C.

Malleable Founders Society, industry meeting, Hotel Sheraton-Cleveland, Cleveland, Ohio, Sept. 18. Write Malleable Founders Society, 781 Union Commerce Building, Cleveland 14, Ohio.

Steel Founders' Society of America, fall meeting, The Homestead, Hot Springs, Va., Sept. 21-22. Write: Steel Founders' Society of America, 606 Terminal Tower, Cleveland 13, Ohio, attn. George K. Dreher, Market Development Director.

STRAN-STEEL BUILDINGS—NOW IN COLORS!



Stran-Steel Rigid Frame structures have no interior columns. From wall-to-wall and ceiling-to-floor their wide open interiors are 100% usable.

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Fashionable as well as functional, these all-steel buildings are available in six rich Stran-Satin Colors: blue, bronze, green, gray, rose and white. Factory-applied Stran-Satin Color coatings of vinyl-aluminum are baked on over zinc-coated steel.

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LOW-COST STRAN-MASTER: The fireside Stran-Master, lowest cost all-steel building, is also available in Stran-Satin Colors. Yours for only a few hundred dollars down.

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"I've seen our Ford Tandems pull out where others couldn't"

says Walter E. Carlson, President
Park Construction Company, Minneapolis, Minnesota

"We're still using the first Ford Tandems we bought in 1954!

"In the construction business, our trucks really take a beating. They have to be rugged and durable, and that's why we like our Ford Tandems. On one of our earth moving jobs, for example, our Ford T-800's are in constant operation an average of ten hours each day, traveling about two hundred miles. They climb out of the pit, loaded with twelve yards of dirt, and walk right up a 12% grade. In fact, I've often seen our Fords pull out of places where other trucks couldn't.

"My father, who started the business back in 1910 with a horse and wagon, bought one of the first Ford Trucks ever made. That was over 44 years ago—and we've used Ford Trucks ever since. We pioneered the use of Ford Tandem Axle Trucks in this area in 1954. Now we have a total of forty trucks, including thirty-five Fords.

"We completely overhaul our trucks at the end of each construction season. That way we keep them in top operating condition and they last longer. We like Ford service, too, because we don't have to tie up our money in a large parts inventory. We can always get the parts we need quickly from our Ford Dealer."

FORD TRUCKS COST LESS

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LAST LONGER, TOO!

'59 FORD PICKUPS GIVE 25.2% MORE MPG!

25.2% advantage delivered in Economy Showdown Tests means five days' driving on four days' gas

The nation's leading automotive research organization* proved and certifies that a '59 Ford Six Pickup will run five days on the same amount of gas the average competitive '59 pickup burns in four days.

The tests were made on 1959 six-cylinder ½-ton pickups of the six leading makes purchased from dealers – just as you would. The trucks were tested in every kind of driving–high and low speeds, open highway and city streets, even simulated door-to-door delivery. And in every test '59 Ford Sixes delivered more miles per gallon than any other make.

Here are the actual percentages:

HOW NEW '59 SIXES RATE IN GAS MILEAGE						
'59 FORD SIXES GIVE	25.2% more miles per gallon than Make "C"	31.1% more miles per gallon than Make "I"	9.6% more miles per gallon than Make "G"	42.6% more miles per gallon than Make "D"	22.0% more miles per gallon than Make "S"	25.2% more miles per gallon than the average of all makes

What's the secret of Ford's economy? First, of all pickup sixes, only the Ford Six has modern Short Stroke design which reduces engine friction and thus requires less fuel. Second, to this modern engine, Ford has added a new economy carburetor to meter fuel more precisely in both high- and low-speed ranges.

Your Ford Dealer has the complete report of Economy Showdown U.S.A. See him and get the whole story firsthand.

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Simple...Efficient...Time-tested

Thousands of field installations have proved the ease and efficiency with which LOCK JOINT CONCRETE PRESSURE PIPE can be tapped under pressure. Service connections as well as larger outlets up to 36" in diameter can be made without interruption of service or damage to the line.

In addition to safe, easy tapping of all diameters, LOCK JOINT CONCRETE PRESSURE PIPE also combines long life, dependability, permanent high carrying capacity, ease of installation, and negligible maintenance. These features make it the logical choice for distribution piping as well as water transmission lines.

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THE CONSTRUCTION WEEK

LESS FOR MILITARY CONSTRUCTION—The House Appropriations Committee last week lopped 18% off the Pentagon's military construction budget after criticizing the Defense Department for "piecemeal and short-range planning" and underestimating costs on individual projects. The committee reported out a $1.3-billion bill. Among the reductions were funds requested for construction of 10 hospitals.

LOWER STEEL PRICES—Cost of construction steel may go down before yearend. Factors favoring a cut are the steel industry's strong first-half profits, and the heavy competition from foreign steel products. It all depends on the current strike ending without government interference and with the steelworkers union agreeing to changes in local work rules.

TURNPIKE TO THE RESCUE—Support is growing in New Jersey for a proposal that would divert surplus Turnpike funds for tax relief to commuter railroads. The measure, which would require a general referendum and then approval from two-thirds of the Turnpike bondholders, is still a long way off. It could mean $680 million worth of tax relief over the next 28 years. (Coming in ENR next week is a complete round-up of the state of rail mass-transportation to and from the major cities).

WATER CROOK GETS THE BILL—The Georgia ice company president charged with stealing $200,000 in water from the City of Gainesville (ENR May 14, p. 21) has been convicted. The sentence: at least two years in jail and 23 years probation, plus a $1,725 fine. The water was filched through a tap on the plant's nonmetered fire sprinkler system.

RETARDED ACCELERATOR—It looks like construction of the $105-million accelerator at Stanford University will be held up a year, pending probable renegotiation of the 9-mill power agreement between project sponsors and Pacific Gas & Electric Co. When Sen. Clinton Anderson (D., N.M.), chairman of the Joint Congressional Atomic Energy Committee, noted that PG&E was about to gain access to 3-mill dump power from Bonneville, he asked AEC to re-examine comparative power costs. The accelerator will need 60,000 kw at first, more later.

BUFFALO BANS BAN—Lifting bans on demolition balls, heavy equipment and open fires in wrecking work saved Buffalo, N. Y., $402,200 last week. The City Council voted the move to take advantage of lower costs in clearing space for a 29-block redevelopment project. Low bid for razing the existing buildings in place and burning waste on the site was just $744,000. Piece by piece demolition, with refuse carted to a dump, would have cost $1,146,200.

Changing old ideas on earth moving...

The JOHN DEERE "840" with Hancock "Piggyback" Scraper

"It takes heavy investment to get an efficient scraper of effective size."

"You need a stand-by pusher to get those heaped payloads."

"You have to sacrifice high maneuverability if you're going to get a scraper that really produces for you."

These old ideas are fading fast in the face of the performance of this John Deere-Hancock outfit.

First, compare the initial cost with other scrapers. See for yourself what you save in dollar outlay, keeping in mind you don't need a pusher tractor to give you a *fully loaded (7-1/2-yard) bowl every time.*

Then, consider the added working efficiency you get with the John Deere-Hancock unit which makes a complete, *continuous turn within a 30-foot diameter.*

Finally, you get that outstanding feature you are sure to want—*positive, hydraulic ejection*—which means a fast, easy dump in all soils.

For a demonstration, see your John Deere Industrial Dealer.

For detailed specifications, write today.

Immediate ownership through the John Deere Credit Plan

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JOHN DEERE *"Specialists in Low-Cost Power with a Heavyweight Punch"*

WASHINGTON OBSERVER

- **Bomarc projects moving north?**
- **New radar won't affect BMEWS—for awhile**

● **A new cloud of doubt covers the Pentagon's plans for construction of Bomarc antiaircraft missile bases.** Congress wants the Air Force to shift construction of bases planned in the northern U. S. to Canada. The Defense Department says the proposal is "being seriously considered."

In voting out the military construction bill for fiscal 1960 (see p. 17), the House Appropriations Committee said, "There shall be no obligation of funds for Bomarc sites in the northwestern portion of this country between the Great Lakes region and the Pacific Coast until a detailed survey has been made and consideration given to advancing these locations farther north."

Three proposed Bomarc sites—still not officially announced—are affected: at Minot AFB, N. D.; Glasgow AFB, Mont.; Malmstrem AFB, Mont. Four other installations, on which bids have been requested, are planned in the coastal area at Corvallis, Ore.; Everett, Wash.; Lompoc, Calif.; and Fairfield, Calif. Whether the last four fall within the House committee's zone is uncertain.

Reason for the push to place the Bomarc bases in Canada is to intercept enemy bombers farther away from large population centers, thus reducing the danger of fallout. Canada is already building two Bomarc sites. The additional three or more installations would be built in the little-populated subarctic region. Talks with the Canadian government on the new proposal are under way. The shift to subarctic Canada from the northern U. S. would mean a sharp boost in construction costs—involving extension of communication lines and building of roads and other support facilities. The outlook on the proposed move is uncertain.

—

● **Construction of the two ballistic missile early warning systems** (BMEWS) sites in Alaska and Greenland—now under way—will not be affected by the latest Navy radar development. The new radar—called "high frequency ionospheric back scatter radar"—extends the detection range from the present 3,000-mile limit to 5,000 miles or so.

The new system is still in the experimental stage, at least two years away from production. Depending on how fast development goes, however, the new system could conceivably affect plans for the third BMEWS base, now planned for Scotland.

The fiscal 1960 budget earmarks no funds for the Scotland site. Theoretically, the new radar development could mean a delay in construction presently proposed for the fiscal 1961 budget and a change in site.

POWERGRIP "TIMING" BELT

Why Reo's new ready-mix truck *(with a flywheel power take-off)*

...is equipped with PowerGrip "Timing" Belt

Reo's* new transit mix truck has a revolutionary new flywheel power take-off. This does away with a separate engine or a take-off from the front end to truck engine crankshaft. Reo's take-off is factory designed, and engineered and installed as an integral part of the chassis engine drive. It is at the rear of the engine, ahead of the transmission. Only U. S. Rubber's PowerGrip "Timing"® Belt can deliver the positive, smooth, direct, even-flowing power desired by Reo's engineers. PowerGrip "Timing" Belt eliminated the need for lubricants and the possibility of oil leaks. This positive drive belt is an essential, functional part that helps bring to the transit mix operator a payload increase from 400 to 600 lbs. per trip.

The efficiency and the freedom from maintenance that U. S. Rubber's PowerGrip "Timing" Belt has brought to this new revolutionary Reo drive has been demonstrated repeatedly on original equipment and replacement drives. Your U. S. Rubber distributor and "U. S." transmission engineers stand ready to help you with any transmission replacement or design problems.

*Div. of White Motor Co., Lansing, Michigan

Mechanical Goods Division

United States Rubber

WORLD'S LARGEST MANUFACTURER OF INDUSTRIAL RUBBER PRODUCTS

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1958-60 Plans of U. S. Manufacturers

Europe
...a big increase in outlays here **up 76%**

Latin America
...smaller outlays here **down 34%**

Building Dollars Head for Europe

U.S. industrial building overseas is shifting from a traditionally heavy concentration in the Western Hemisphere to a new emphasis on Europe.

American contractors and engineers thus face a stiff competitive challenge as foreign business leaves the areas they've worked in and moves to an area where local firms have a much bigger on-the-spot advantage.

The shift toward Western Europe is the most striking feature of a new study of foreign operations of U.S. industrial companies, just completed by the McGraw-Hill Department of Economics. It is based on a survey of companies accounting for about three-fourths of all overseas investment annually by U.S. manufacturing and petroleum industries.

These companies plan to spend more than $2.1 billion on new plants, equipment and property outside continental U.S. in 1959—a 5% increase over 1958—and about the same amount in 1960. However, the 1960 figure may well be higher, for several companies said they were contemplating overseas projects but had not yet made definite plans.

Western Europe will get 47% of total overseas outlays of U.S. manufacturing companies next year, according to present plans, up from only 31% in 1958. In dollar terms, these outlays in Europe will climb from $238 million in 1958 to $418 million in 1960.

Simultaneously, U.S. manufacturers cooperating in the survey are planning to slash their outlays in Latin America by 34% between 1958 and 1960. This year's total for Central and South America, $231 million, is up slightly over 1958. But next year's plans call for a cut to only $143 million.

Expenditures in Canada are holding steady at around $200 million a year, but the percentage of the world total for U.S. manufacturers going to Canada is dropping slightly.

Petroleum companies, which actually invest more abroad than all manufacturing industries combined, expect to continue spending about 60% of their overseas total in the Western Hemisphere. However, only a small portion of their investment dollar goes for construction.

A major reason for the growing interest in building manufacturing facilities in Western Europe undoubtedly is the new European Common Market. This sets up, over a period of several years, a free trade area embracing France, West Germany, Italy, Belgium, the Netherlands and Luxemburg. The pact may be extended later to include other countries.

If an American company wants to sell in this Common Market, there are real advantages to producing in that area. Tariffs will get progressively lower on trade within the Common Market, but remain high on imports from the outside. Moreover, Western Europe is widely regarded as a fast-growing market for consumer and industrial products over the next several years.

Besides the fact that Europe's pastures look greener at present, some Latin American countries that have traditionally drawn large U.S. investments may now be losing favor because of political and economic instability. There is still considerable uncertainty about economic policies in Cuba.

The biggest decline scheduled for plant and equipment outlays in Latin America is in the primary metals industry. Surveyed companies spent $75 million in 1958 but plan only $32 million for 1960. But declines are in prospect also for the second and third ranking spenders—chemicals and transportation equipment (including autos).

The expansion move in Western Europe is being led by the machinery

Total foreign capital outlays by U. S. firms will rise

(Millions of Dollars)

INDUSTRY	ACTUAL 1957	ACTUAL 1958	PLANNED 1959	PLANNED 1960
Primary Metals*	$155.2	$127.7	$132.6	$96.2
Machinery, Including Electrical	181.0	176.0	208.2	251.1
Transportation Equipment (1)	218.6	109.3	209.9	186.8
Other Metalworking	30.3	21.5	33.3	26.3
Chemicals	147.5	178.5	203.5	175.0
Paper	60.5	29.6	39.1	25.0
Rubber	61.5	51.0	69.4	67.3
Stone, Clay & Glass	22.1	25.0	18.2	12.0
Food & Beverages	39.3	34.2	31.5	37.2
Misc. Manufacturing (2)	13.4	8.8	11.4	11.4
ALL MANUFACTURING	**929.4**	**761.6**	**957.1**	**888.3**
Petroleum	1575.1	1275.8	1186.5	1245.8
TOTAL	**2504.5**	**2037.4**	**2143.6**	**2134.1**

. . . Europe's share will increase

Primary Metals	$3.2	$1.9	$13.8	$24.7
Machinery	94.9	99.6	127.5	166.0
Transport Equipment	170.5	52.3	116.5	122.7
Other Metalworking	6.3	4.8	10.1	14.3
Chemicals	40.9	38.2	69.6	57.1
Paper	2.8	2.2	2.8	1.2
Rubber	12.8	12.9	10.8	10.6
Stone, Clay & Glass	1.6	4.1	1.3	1.4
Food & Beverages	21.1	19.0	13.2	15.8
Misc. Manufacturing	3.5	2.8	4.9	4.1
ALL MANUFACTURING	**357.6**	**237.8**	**370.5**	**417.9**
Petroleum	239.4	384.0	344.1	433.5

. . . Latin America's will shrink

Primary Metals	$80.7	$75.3	$70.8	$32.4
Machinery	21.5	20.7	28.3	31.4
Transport Equipment	10.1	33.4	29.0	20.4
Other Metalworking	8.0	4.3	10.5	4.3
Chemicals	40.4	48.6	43.1	29.9
Paper	.8	9.0	11.3	2.5
Rubber	13.0	13.4	29.0	15.5
Stone, Clay & Glass	7.7	7.3	3.4	2
Food & Beverages	3.1	2.8	4.0	4.6
Misc. Manufacturing	3.7	1.4	1.9	1.6
ALL MANUFACTURING	**189.0**	**216.2**	**231.3**	**142.8**
Petroleum	908.8	477.1	412.9	498.3

. . . And Canada's will be about the same

Primary Metals	$58.9	$38.3	$32.4	$22.5
Machinery	35.1	29.8	28.4	30.5
Transport Equipment	20.3	8.4	23.3	23.3
Other Metalworking	15.9	12.0	11.9	6.4
Chemicals	45.1	54.8	59.0	49.9
Paper	56.8	18.3	23.5	20.3
Rubber	17.3	6.5	14.8	24.8
Stone, Clay & Glass	11.7	12.4	10.0	5.9
Food & Beverages	10.7	9.7	12.2	14.4
Misc. Manufacturing	6.2	4.0	4.6	5.6
ALL MANUFACTURING	**278.0**	**194.2**	**220.1**	**203.6**
Petroleum	367.0	297.3	318.0	255.4

* Includes some mining companies. (1) Including autos. (2) Including textiles.
NOTE: Dollar figures reflect only expenditures of cooperating companies. These companies account for approximately three quarters of annual overseas expenditures of all U. S. manufacturing and petroleum companies. Detail for other geographical areas not available.

. . . Overseas spending

industry, where reported spending was just under $100 million in 1958 and will climb to $166 million next year. Auto and other transportation equipment companies plan big increases for Europe this year and another rise in 1960. These two industries account for 70% of total 1960 plans of U.S. manufacturers for facilities in Western Europe.

U.S. industrial companies expect a

Investment Shift

Plans of U.S. companies to spend more for plant and equipment in Europe at the expense of Latin America bring little joy to U.S. construction and engineering companies.

Some construction men have been aware of undercurrents indicating that Latin America is becoming less attractive for new private capital outlays by companies in this country. But the McGraw-Hill survey served to let construction men place the changes in a dollars and cents perspective when questioned by ENR.

Executives of U.S. construction companies generally are quick to agree that a continuation and acceleration of the trend to Western Europe eventually could reduce the volume of private contracts from U.S. manufacturing companies. They also agree that it will be difficult to compete for construction contracts in Western Europe against companies on that continent. Some even add, "It's tough enough competing against European contracting firms for any type of work in Latin America, let alone trying to beat them in their own backyard."

However, the same spokesmen believe that it will be a long time before the shift reaches large enough proportions to result in an absolute net loss of construction contracts to the European market.

Greatest concern now appears to be the competition from European companies bidding for jobs outside Europe. A spokesman at Ebasco International, New York City, says the U.S. is defaulting to Western European competition in Latin America. "Western European nations are flooding Latin America with both capital and know-how, all at the expense of U.S. contractors and businessmen," he says.

The Ebasco spokesman generally reflects the thinking of other construction companies operating abroad. They feel that Latin America will continue to be a flourishing market for construction, especially in public works. "This is a big market alone, so the shift of private U.S. capital outlays to Europe may not be felt immediately. But we'll still

plans swing to Europe

much faster increase in sales from plants overseas in the years 1959-60 than they expect in export sales from their U.S. plants. This year they expect sales of overseas subsidiaries, branches, etc., to rise 7%, while they anticipate only a 1% rise in exports.

Evidently, when it comes to producing for foreign markets, many companies are finding it cheaper to produce abroad.

Adds Problems

have to fight to get the work," one company official believes.

Architect-engineering firms may be less affected by the shift to Western Europe, some company spokesmen say. Many U.S. engineering firms have offices in Europe, staffed largely by citizens of the country in which the office is located. The local work force is paid at European salary rates, which permits U.S. engineering firms abroad to compete effectively and successfully with European firms.

The capital investment trend may result in more engineering and construction companies establishing offices in Western Europe, some executives say. One even believes that U.S. contractors should try to affiliate with established construction companies in Europe.

But opening of offices or European subsidiaries will not be new in the annals of U.S. construction company history. It will be an acceleration of a practice that has grown rapidly since World War II.

"We anticipated increased construction activity of all types in Western Europe and the Eastern Hemisphere," says Edwin Morris of Raymond International, Inc., New York City.

"For this reason we formed Raymond International (U.K.) Ltd., in 1958, a completely self-contained subsidiary headquartered in London," Mr. Morris explained.

This operation gives Raymond these advantages:

- Close contact with trends and developments in Western Europe and the Eastern Hemisphere.
- Access to cheaper labor and materials.
- Access to European financing sources.
- Better handling of currency problems in sterling areas.
- Improved relations with foreign engineering firms and contracting companies.
- Close liaison with U.S. companies through the New York office.

All this adds up to a competitive challenge that U.S. construction men appear willing to accept.

Boom Buckles, Workman Killed

One worker was killed and five others were injured last week when a 190-ft crane boom collapsed during concreting on a housing project in New York City.

Crews had just started casting the sixth floor of a 20-story flat-plate concrete apartment building at the Manhattanville Housing Project. The high-strength alloy-steel boom buckled 38 ft above its pivot point while hoisting a 2-cu-yd bucket of concrete, a standard lift for this project. Falling across the work deck, the boom wrapped itself over both sides of the building, pinning one worker.

George F. Driscoll and Moccia Construction Co., New York City, are the builders, under contract with the New York City Housing Authority.

Despite the impact of the falling boom, the forms and supporting shores were undamaged.

Crews resumed concreting operations two days later after replacing some spandrel haunch forms.

Total development cost of the Manhattanville project is $25.4 million. The project will provide 1,272 apartments, ranging in size from two to seven rooms. There will be six 20-story-high apartment buildings.

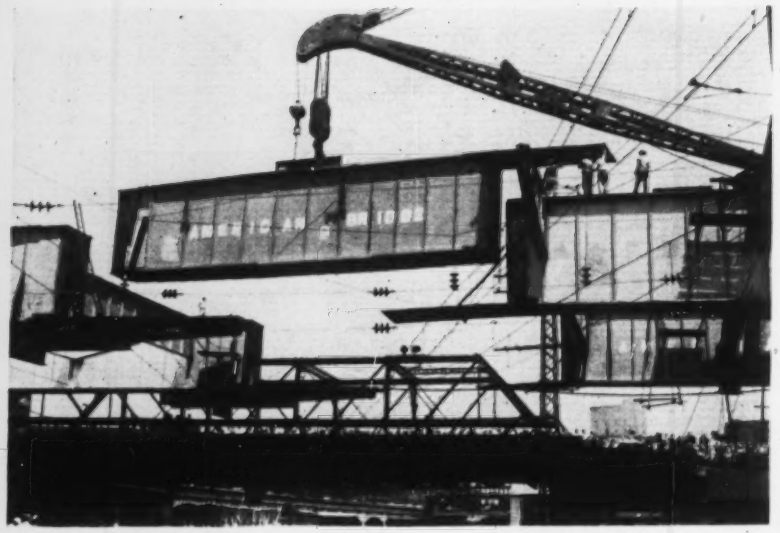
Three Die in Fall From Bridge

Three construction workers were killed last week when they fell 110 ft from the deck of a bridge under construction across the Union Ship Canal near Buffalo, N.Y.

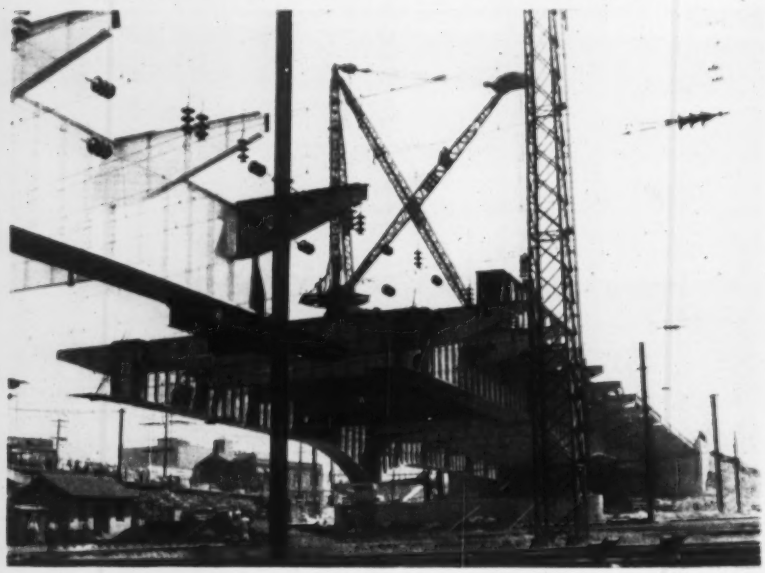
The three men, employed by Johnson, Drake & Piper Co., Buffalo paving contractor, were pushing a two-wheeled portable generator across a temporary deck when a section of ¾-in.-thick plywood decking gave way, dumping the men and the generator through the bridge framing.

A fourth man was saved when his clothing caught on a steel beam. An ironworker pulled him to safety.

The deck panels, 4 x 8-ft sections of plywood, were tacked to 2 x 6-in. wood joists 16 in. o.c. The joists, in turn, were toe-nailed on top of 2 x 2-in. sleepers running between I-beams of the bridge deck framing.



Closing Members Are Placed . . .



. . . In Long Box-Girder Span

The closing girders of the longest box-girder span in the United States have been set in place.

The bridge, part of the Oak Street connector in New Haven, Conn., is a three-span continuous unit with a center span of 378 ft 9 in. and side spans of 151 ft 6 in. Its two main girders are 21 ft 6½ in. deep at the piers, 12 ft 3½ in. deep beyond their haunches.

The structure is an important link in the high-speed road system connecting New Haven's city streets with the Connecticut Turnpike and with the main highway to Hartford, the state's capital. It will carry eight lanes of traffic across an electrified main line and terminal yard belonging to the New York, New Haven and Hartford Railroad.

In preliminary studies made to determine the most satisfactory and economical characteristics of a bridge across the tracks, an attempt was made to locate a pier in the center of the track right-of-way so as to shorten the required span.

But because train movements in the busy yard are automatically controlled, the relocation of tracks and utilities would have cost almost five times more than the amount that could have been saved by shortening the spans, regardless of the kind of bridge used. It was desirable, therefore, to keep piers outside the tracks.

Three types of structures were considered: a through-truss, a plate girder, and the box girder. Configuration of the tracks in the area of the proposed structure dictated in favor of the box-girder design. The way the tracks fan out would have required placing piers for either of the other two possible designs in such position that a long span would have been required.

The use of two through-trusses, set 120 ft apart, would have required a span length of 440 ft. A plate girder design using four girders for each half of the roadway would have cut the span to 410 ft. The box-girder design, with the girders closely spaced and the roadway carried on long cantilevered brackets outside them, permitted the reduction of the span to 378 ft 9 in.

The webs of each box girder vary in thickness from ½ to ¾ in. and are set 5 ft 6 in. on centers. The maximum flange section is made up of four 8 x 8 x ¾-in. angles, five cover plates, 86 x ¾ in., and one cover plate, 48 x ¾ in., for a total area of 404 sq in. exclusive of the webs. Low-alloy steel was specified and thickness was kept to a maximum of ¾ in.

Moment, shear, and deflection calculations include the effects of a future wearing surface weighing 25 lb per sq ft of roadway. To compensate for maximum dead load deflection the structure was designed with a center span camber of plus 13⅜ in. and an end span camber of minus 2⅛ in.

Due to the relatively short end span, there is an uplift at the abutments. To offset this uplift, counterweights of concrete are provided at the end floor beams. The abutments bearing these concrete weights measure 60 ft by 6 ft by 7½ ft and weigh 211 tons apiece.

D. B. Steinman of New York City was designing engineer. The foundation and other substructure work was done by C. W. Blakeslee and Sons, Inc. of New Haven and erection of structural steel was handled by American Bridge Co. Mariani Construction Co., New Haven, was general contractor.

Philadelphia Police to Get $3.5-Million Headquarters

Construction will start in early 1960 on a $3.5-million police administration building in Philadelphia.

The four-story project, with two 100-ft-dia units and a serpentine-shaped connecting link, will be precast and prestressed concrete, except for cast-in-place core areas. Single-piece, precast window-wall units will extend 35 ft from second floor to roof.

Architects for the project, all from Philadelphia, are Robert L. Geddes, Melvin Brecher, George W. Qualls and W. W. Cunningham. A contractor hasn't been chosen yet.

Interstate financing isn't set, but . . .

House Unit Rejects Long Stretchout

The House Public Works Committee last week took the Ways and Means Committee's cutback-and-slowdown highway financing plan and popped it right back with a rejection slip.

Public Works voted instead to keep the Interstate Highway program at about its present rate of construction by continuing federal appropriations at $2.2 billion a year until 1972.

The committee does call for a small stretchout—one year—with an allocation of $1.885 billion for 1973.

Ways and Means in its first executive session Monday again voted against an increase in the federal gasoline tax. It met again on Tuesday to go further into the problem.

Although the committee is still unlikely to recommend the full 1½-cent increase demanded by the President, pressure for a more flexible Administration approach to the financing issue is growing. The state governors at their meeting in Puerto Rico last week unanimously urged the President to compromise with Congress on the financing issue.

When Congress finally works out a solution to the highway program dilemma, one thing is sure: It will be one of the most politically maneuvered pieces of legislation to come from the legislative body this year.

In a sense, the troublesome matter of bolstering finances for the program is right back at the starting line. And key people involved in the matter think it was planned that way.

In fast order, the House Ways and Means Committee adopted a drastic cutback in the program based on deficit spending and a time stretchout.

This would have meant reducing Interstate apportionments of fiscal 1961 from the authorized $2.5-billion level to only $600 million. Lesser reductions would be required in subsequent years (ENR Aug. 6, p. 25). Financing for the program would come from a $1-billion bond issue and additional earmarking of highway-user excise taxes to the Highway Trust Fund.

It was a solution that ran counter to all predictions. And it satisfied no one.

It threw the Administration and the states in an uproar over a potential sharp cut in construction. The Administration, along with many of the legislators, wanted no part of any such financing proposal.

As a result, the House Public Works Committee flatly rejected the recommended slash in apportionments and voted to restore Interstate apportionments to the original level adopted in 1956.

So the issue went back before the Ways and Means Committee.

Persons involved in working out a solution say they aren't surprised at this sequence. In fact they hint it was all part of the original strategy.

Their reasoning runs like this: Grassroots support for keeping the highway program running pretty much at its present level is strong. Congressmen have received hundreds of letters urging that no cuts be made.

In addition, the Administration and organized highway-user groups want to keep the construction program running on schedule.

Although few people expected Congress to accept the Administration's proposal for a 1½-cent per gallon increase in motor fuels, most observers looked for some type of tax increase. In fact, such powerful figures as House Leader Sam Rayburn (D., Tex.) and Rep. Wilbur Mills (D., Ark.), chairman of the Ways and Means Committee, indicated they would favor a small fuels tax increase over bond financing.

This accounted for the surprise when Ways and Means voted out a deficit financing plan. But, some insiders say privately now that Representative Mills was fairly certain the matter would be thrown back to his committee. Now the chairman will be strengthened in his view that a gasoline tax increase is the best answer to a difficult problem.

Until states were faced with the threat of a virtual halt in roadbuilding for the next couple of years, there was strong opposition among them to any additional federal tax on motor fuels.

Now, however, support is showing from "back home" to levy a federal gasoline tax to prop up the road program. An avalanche of letters and telegrams urging adoption of a gas tax increase has hit Congressional offices.

There is some question, however, about the spontaneity of these letters. Rep. Frank Clark (D., Pa.) reports a flood of form letters, even including typewritten signatures.

There is no question about the concern of states over their highway construction program, however. Some 22 states have already stopped awarding new Interstate contracts, and the number is increasing daily.

So far, these states have shut off contracting: Maine, New Hampshire, New York, Maryland, Ohio, Virginia, Georgia, Tennessee, Indiana, Wisconsin, Minnesota, Missouri, Nebraska, North Dakota, South Dakota, California, Oregon, Washington, Colorado, Utah, New Mexico and Wyoming.

TVA Gets Green Light on Bonds

The Tennessee Valley Authority finally got the right last week to finance its own future expansion by selling revenue bonds. President Eisenhower signed into law a bill authorizing the agency to issue bonds up to $750 million outstanding at one time.

TVA will reportedly lose no time getting into the money markets. Within 90 days the agency will try for $200 million to $250 million, Washington sources say. The money will be used mainly to speed up work on the huge Widows Creek steam power plant.

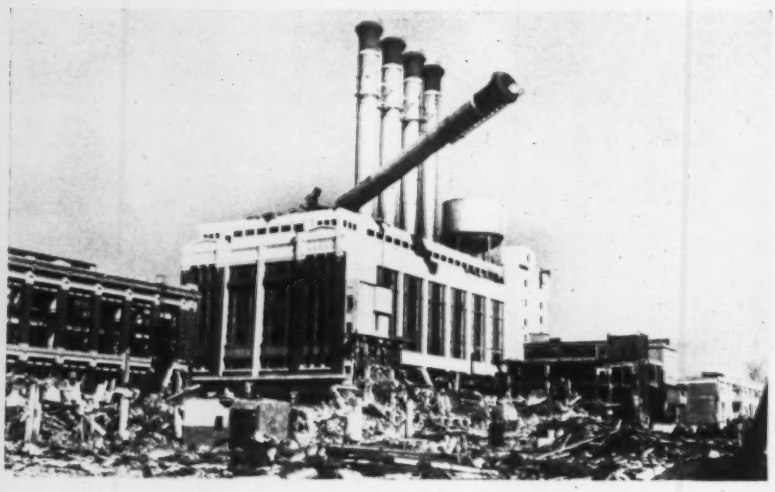
Within five years the TVA corporation expects to be bumping against the $750-million ceiling in catching up with its construction lag.

A remarkable compromise between President Eisenhower and Congress cleared the way for the bill. After it was on the President's desk, Congressional leaders pledged subsequent removal of a provision giving Congress veto power over TVA construction plans. This part of the bill had evoked a veto threat from the White House.

The new law thus apparently permits TVA to build new plant without review by either Congress or the Executive. Certain realities limit this seeming freedom, however:

- The governing board of TVA is appointed by, and serves at the pleasure of the President.
- The Bureau of the Budget, as the White House agent, will have in the future, as in the past, the final say-so over TVA's administrative budget—as differentiated from the construction budget. This is an important political lever.
- The enabling act requires that TVA yield to Treasury judgment on two critical factors—timing of bond sales and maximum interest rates.
- TVA, which has been required only to pay 2% interest on unamortized past appropriations, now is obligated to pay back $1 billion of appropriated funds within the next 52 years plus interest on the unamortized balance at the going rate on long-term government indentures.

'Monument of Construction' . . .



. . . Comes to the End of the Road

"A monument of modern construction" is now toppling from the Detroit-area skyline. Demolition of the five towering smoke stacks atop the old powerhouse of Ford Motor Co.'s Highland Park plant began last week.

A symbol of industrial might for more than 44 years, the powerhouse and stacks are being razed as part of the company's multimillion-dollar Highland Park modernization program.

At one time, the 20,000-sq-ft facility was the largest isolated powerhouse in the world. (Only the power plant of Germany's Krupp Works, integrated with other facilities, rivaled its size.)

The smoke stacks tower 275 ft above the ground, with the stacks alone measuring 155 ft from the roof of the powerhouse. The stacks are 12 ft in diameter at the top and have steel casements and firebrick lining.

When the old powerhouse was completed in 1915, it was aptly described by Ford engineers as "a monument of modern construction, a structure of concrete and steel in which no detail has been neglected."

A modern power plant has replaced the now obsolete facility. The new power plant has approximately 6,000 sq ft of floor area. It is only 25 ft high.

Glass Building Withstands Hurricane Debra's Worst

A new $2-million glass-walled office building in downtown Houston recently redeemed the builder's guarantee that it would withstand hurricane-force winds.

It was put to the test recently when Hurricane Debra lashed Houston with 80 mph winds.

The five-story Gibralter Bank building remained intact, and despite heavy rain and winds there was no leakage.

Elsewhere in the city about 60 plate-glass windows had been shattered by the fierce gusts.

The glass used for the building is a solar gray—comparable to sunglasses. During the day it protects the interior against glare and heat. The outer panes, ¼ in. thick, are glazed. The inner panes, also ¼ in. thick, are clear glass. Between them is a ½-in. area of hermetically sealed air.

A total of 657 glass units was used on the job. They came in two sizes—the large units, 54 by 126 in. and weighing about 300 lb each, and the smaller ones, 56 by 36 in., weighing about 100 lb.

The glass walls were hoisted into place in their metal frames with suction cups, pulled by a line from a monorail on the roof. The walls fit over metal grids, which in turn are covered by an aluminum skin.

The structure was designed by Raymond H. Brogniez and Thomas E. Graeeen. Walter P. Moore was structural engineer. Marshall Construction Co. was general contractor. All are from Houston.

Floating Bridge Sunk By a Court Decision

Construction of a second bridge across Lake Washington, east of Seattle, may be delayed for several years.

The Washington Supreme Court ruled unconstitutional a 1959 state law intended to help finance the bridge. The law would have authorized Washington's Toll Bridge Authority to borrow up to $750,000 a year from the state motor vehicle fund. The borrowed money would have been used to pay off a proposed $30-million bond issue and meet reserve requirements, in case tolls were insufficient (ENR May 7, p. 99). Financial studies showed the bonds would be hard to sell without the state's backing.

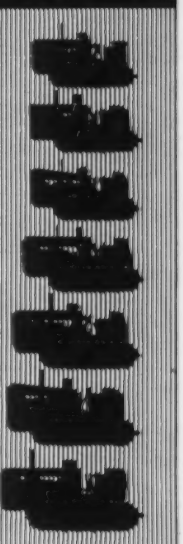
The Bridge Authority received bids on a floating section of the bridge in March. Low bidder was Guy F. Atkinson Co., San Francisco, with a bid of $10.9 million. Atkinson extended its bid offer for 40 days after the original 90-day "hold" period had elapsed, but the extension expired last week.

B - 451

EIMCO CHALLENGES YOU TO COMPARE THE FACTS

NOT THE CLAIMS

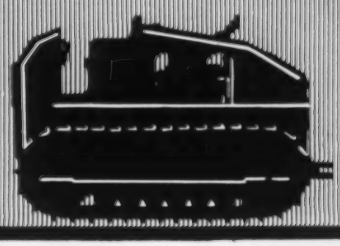
	EIMCO 103	CAT D-4	CAT D-6	AC HD-6	AC HD-11	INT. TD-9	INT. TD-15	CASE 1000
Maximum Drawbar Pull (zero track slippage)	33,000	10,700	19,000	15,485	21,980	13,240	23,730	24,000
Torque Converter	Yes	No	No	No	No	No	No	Yes
Master Clutch	No	Yes	Yes	Yes	Yes	Yes	Yes	No
Power shift transmission on all speeds, with oil cooled metallic clutches that never need adjustment	Yes	No	No	No	No	No	No	No
Independently reversible track	Yes	No	No	No	No	No	No	Yes
Hydraulic track take-up	Yes	No	No	No	No	No	No	Yes
Heat-treated alloy steel grouser shoes, keyed to the track links	Yes	No	No	No	No	No	No	No
One-piece heat-treated alloy steel track rollers, tapered roller bearings	Yes	No	No	No	No	No	No	No
Equalizer bar of heavy duty heat-treated cast alloy steel, allowing full oscillation of crawler tracks with all attachments	Yes	No	No	No	No	No	No	No
Constantly running power take-off drives, front and rear, to standard SAE specs, with rear take-off not affected by track operation, and independent hydraulic pump drive allowing simultaneous use of hydraulic, winch and hoist accessories.	Yes	No	No	No	No	No	No	No
Front operator's seat for full visibility	Yes	No	No	No	No	No	No	No
Ability to operate forward and backward on up to 90% slopes	Yes	No	No	No	No	No	No	No
Tractor guaranteed for one full year of single shift service	Yes	No	No	No	No	No	No	No



for proof of EIMCO 103 SUPERIORITY

WEIGHT BARE TRACTOR, POUNDS	15,000	10,910	17,603	12,600	20,300	11,925	22,540	13,300
H.P. — FLYWHEEL	100	63	93	66	99	71	105	90
TRACK GAUGE, INCHES (STD.)	60	60	74	60	74	60	74	60
STD. TRACK SHOE WIDTH, INCHES	16	13	16	13	16	13	16	16
LENGTH OF TRACK ON GROUND, INCHES	88	61	85⅝	66¾	83⅝	72	89⅝	79
TOTAL TRACK AREA, SQ. INCHES	2,820	1,589	2,744	1,739	2,744	1,896	2,858	2,328
GROUND PRESSURE, PSI.	5.3	6.9	6.4	7.3	7.5	6.3	7.9	5.7
TRACK ROLLER DIAMETER, INCHES	8	8	8	7⅞	7½	N.A.	10½	6
TRACK RAIL WIDTH, INCHES	$1\frac{3}{8}$	1⅝	1⅝	1⅝	1⅝	N.A.	N.A.	1⅝
NUMBER TRACK ROLLERS, EACH SIDE	6	4	6	5	6	5	6	5
TRACK BOLT DIAMETER, INCHES	⅞	⅞	1⅛	⅞	⅞	⅞	⅞	⅞
TRACK BUSHING DIAMETER, INCHES	$2\frac{1}{32}$	2	2½	2	2⅝	2⅝	2½	$1\frac{29}{32}$
TRACK PIN DIAMETER, INCHES	$1\frac{17}{32}$	1⅜	1¾	1⅜	1⅜	1⅜	1⅛	1⅜
SPROCKET PITCH DIAMETER, INCHES	$32\frac{1}{12}$	29¾	30½	28½	31½	28½	30½	24½
GROUND CLEARANCE, INCHES	17	11½	12½	11¼	12½	10½	11	16

N.A. — not available



Above is from manufacturer's data and other sources believed to be reliable, but cannot be guaranteed.

IT'S A FACT . . . not a claim . . . that here is a MODERN line of tractors that makes all other crawler-tractors old-fashioned!

Other exclusive features includes Unitized "Stress Flow" Construction, for far greater strength and rigidity; Self-cleaning Air Cleaner that completely eliminates ordinary routine cleaner maintenance and others, far too numerous to list here. Write for details and specifications on all the advanced engineering features of the modern Eimco 103 line of crawler tractors.

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123 — FRONT END LOADER
133 — STEEL MILL FEL
143 — LOG LOADER

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Gorge High Dam Contractor Wants Out

Bad blood between Merritt-Chapman & Scott Corp. and Seattle City Light over Gorge High Dam has flowed over into federal court. Merritt-Chapman has asked the U. S. District Court in Seattle to void its $14.7-million contract with the city agency for construction of the Skagit River hydroelectric project. The contractor also asks $2.4 million for expenses due to delays he blames on City Light.

Merritt-Chapman and City Light have been at odds for several years over troubles in installing an owner-designed ice barrier to block flow of groundwater into the dam excavations. They appeared ready to end the contract two and a half years ago (ENR March 7, 1957, p. 28) but patched things up.

The contract was signed in December, 1954. It originally called for completion by February, 1959, and set a penalty of $4,000 a day to be paid by the contractor in the event of failure to complete the job on schedule.

Last December Merritt-Chapman asked for 861 more days, and in February City Light granted an extension of 427 days. Merritt-Chapman's new complaint asserts that the project has been delayed a minimum of 907 days. The complaint also states that as a result of changes made by City Light in "the method, manner, scope and time of performance," the original plans have been "abandoned and become unrecognizable."

The contractor claims he is "being forced under constant threats of default and imposition of penalties to perform an entirely different contract than the one upon which it bid."

The ice barrier was inadequate for the job it had to do, according to the complaint, and had to be supplemented with a grout curtain and then redesigned.

Seattle Mayor Gordon Clinton countered with a declaration that increased costs of building the dam have been caused largely by "delays, defective performance and lack of planning" by the contractor.

"The contract was already at least one year behind schedule," the mayor said, "before any difficulties arose with respect to the ice curtain."

Does Mechanization Always Pay Off?

Not necessarily, says The Polish Institute of Organization and Mechanization in a study of relative use of equipment in four "socialist" and four "capitalistic" countries. Mechanization depends on the relative cost of construction labor and equipment.

In what is an indirect commentary on the high wages and standard of living enjoyed by U. S. construction workers, the report points out this country uses 21 power shovels per 1,000 construction workers compared with 1.12 in Poland, and 81 bulldozers compared with 0.93 in Poland.

The report develops this index:

C P = N or W, where C is price of machine, P is wages per hour, N is hours of common labor and W is hours of skilled labor.

Thus it takes only 10,800 hours of common labor to pay for a shovel in the U. S. It would take 100,000 hours of labor to pay for the same shovel in Poland.

The report's thesis:

Mechanization pays off most where wages are very high and prices of mass-produced, competitive equipment are comparatively low.

I. Number of Machines: Total, per 1000 construction workers (MCW)

	USA — 1955		Russia — 1956		West Germany — 1956		Poland — 1956	
	Total	per MCW	Total	per MCW	Total	per MCW	Total	per MCW
Shovel	65,000	21	20,800	5.8	7,478	5.5	568	1.12
Bulldozers	266,000	81	20,150	5.2	4,374	2.8	478	0.93
Cranes: stationery & mobile	na	na	32,250	na	5,598	4.1	818	1.6
Mixers, concrete	100,000	32	36,000	9.7	92,854	77.5	8,723	17.0

II. Price of Construction Machinery in Hours of Common and Skilled Labor

	Power Shovels (a)			Concrete Mixers & Medium Weight Mach. (b)			Trucks, 5-Ton (c)		
	Rank	Common	Skilled	Rank	Common	Skilled	Rank	Common	Skilled
USA	(1)	10,800	7,800	(1)	1,200	900	(2)	6,300	4,500
Russia	(2)	28,500	12,600	(2)	2,500	1,100	(1)	5,700	2,500
W. Germany	(3)	29,000	20,500	(5)	4,100	2,900	(3)	15,000	10,500
Czechoslovakia	(4)	40,000	22,300	(4)	3,600	2,000	(5)	17,800	9,700
France	(5)	50,000	30,000	(3)	2,600	1,600	(4)	17,200	11,200
E. Germany	(6)	74,000	45,000	(7)	4,700	2,800	(7)	34,500	21,000
Austria	(7)	82,000	64,000	(8)	9,700	7,500	(8)	40,000	31,000
Poland	(8)	100,000	57,000	(6)	4,700	2,600	(6)	24,000	14,000

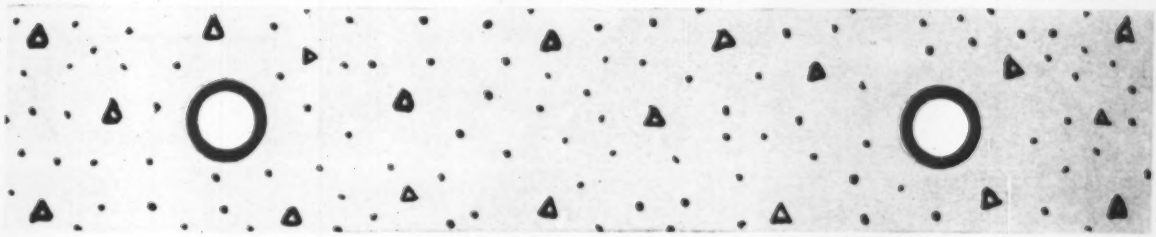
III. Price of Construction Materials in Hours of Common and Skilled Labor

	Bricks/M			Cement/ton (c)			Reinf. Steel/ton (c) 10-12 mm bars		
	Rank	Common hours	Skilled hours	Rank	Common hours	Skilled hours	Rank	Common hours	Skilled hours
USA	(1)	17	12	(1)	13	9	(1)	83	60
W. Germany	(2)	38	27	(4)	35	25	(3)	232	164
France	(3)	63	41	(6)	48	31	(5)	300	194
Russia	(4)	80	35	(3)	34	15	(4)	240	105
Austria	(5)	84	64	(8)	72	54	(8)	430	333
E. Germany	(6)	92	53	(5)	48	29	(7)	368	190
Czechoslovakia	(7)	96	54	(2)	30	17	(2)	205	114
Poland	(8)	158	90	(7)	63	36	(6)	355	203

(a) ½ cubic meter or 1.31 cy (b) 400-500 liters or 1.31 cy (c) Metric ton = 2,204.6 lb

Reported by Polish Institute of Organization and Mechanization

4-D WROUGHT IRON PIPE



FOR SNOW MELTING AND RADIANT HEATING SYSTEMS

PROPOSAL FOR HIGH STRENGTH, CORROSION-RESISTANT INSTALLATIONS

New 4-D Wrought Iron has increased corrosion-resistance, improved mechanical and physical properties. It was achieved by substantially increasing the deoxidation of the base metal, slightly increasing the phosphorous content and using a more siliceous iron silicate.

Write for new 4-D Wrought Iron literature and specific technical information. A. M. Byers Company, Clark Building, Pittsburgh 22, Pennsylvania.

PIPE: THE MOST IMPORTANT SINGLE COMPONENT—Pipe for snow melting and radiant heating systems *must* resist corrosion. It is only accessible for repairs at considerable cost and inconvenience. Any leaks that might result are frequently difficult to locate with any accuracy. It is also virtually impossible to avoid some rough handling during the course of fabricating and installing such systems. So, strength is another piping must.

EXPANSION COEFFICIENTS AND WORKABILITY—Pipe is exposed to wide temperature ranges in these services. So there's always the possibility of unequal expansion damaging surrounding material. The coefficients of 4-D Wrought Iron and concrete are identical. This minimizes the possibility of concrete cracking due to thermal expansion. Additional advantages of 4-D are: good bending properties and the sound, durable welds that can be obtained as a result of its self-fluxing action.

SUITABILITY OF 4-D WROUGHT IRON—4-D Wrought Iron is corrosion-resistant, strong, compatible with structural materials over wide temperature ranges, and easy to fabricate. There is *no* "or equal." Historically, the *first* snow melting system in the U.S. was Wrought Iron: designed 34 years ago for Rochester Gas & Electric Corporation, Rochester, N. Y. No failures, ever. The *first* radiant heating system in the U.S. was likewise Wrought Iron: designed in 1938 for Frank Lloyd Wright's famed S. C. Johnson & Son Office Building in Racine, Wisconsin.

BYERS 4-D WROUGHT IRON

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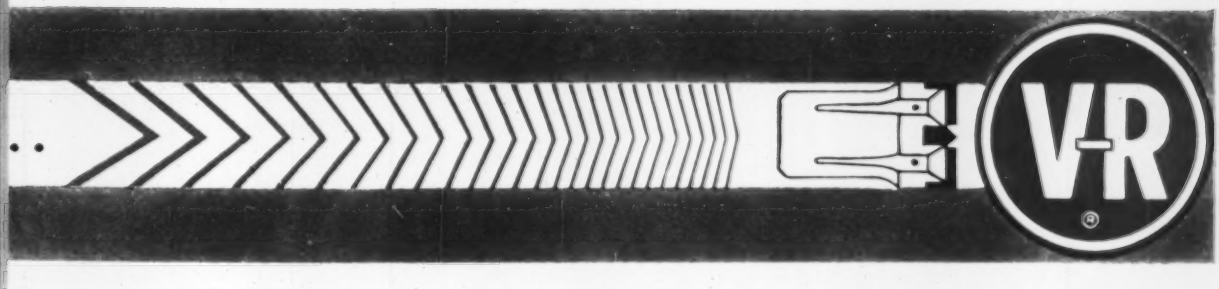
ENGINEERING . . . every bit is specially engineered for faster penetration and longer life on tough drilling jobs.

MANUFACTURING . . . V-R manufactures *complete* bits . . . including the manufacture of the carbide from the ore to the finished product . . . your assurance of consistent quality.

V-R

M-748



New V-R percussion bits give you

PENETRATION

Drilling time is money . . . your money in terms of both man-hours and investment in drilling equipment. That's why V-R has gone "all out" to give you the ultimate in drilling speed . . . we know that faster penetration pays off for you on every job. New V-R percussion bits are the result of 29 years of V-R carbide research and manufacturing experience, coupled with the most exhaustive on-the-job field testing program in drilling history. Leading contractors, construction engineers and carbide specialists cooperated fully in these tests to assure that new V-R percussion bits will penetrate faster, give longer life between grinds and hold gauge longer on any drilling job. Now these fast, rugged bits are ready to go to work for you. Contact your nearest V-R representative or write for complete information.

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19 sizes, $1^{9}/_{16}$" through 5" diameter — thread types 200, 400, 600, 700, 1000, J-2.3, J-7.5 and Type 2.

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Precast, Prestressed Concrete

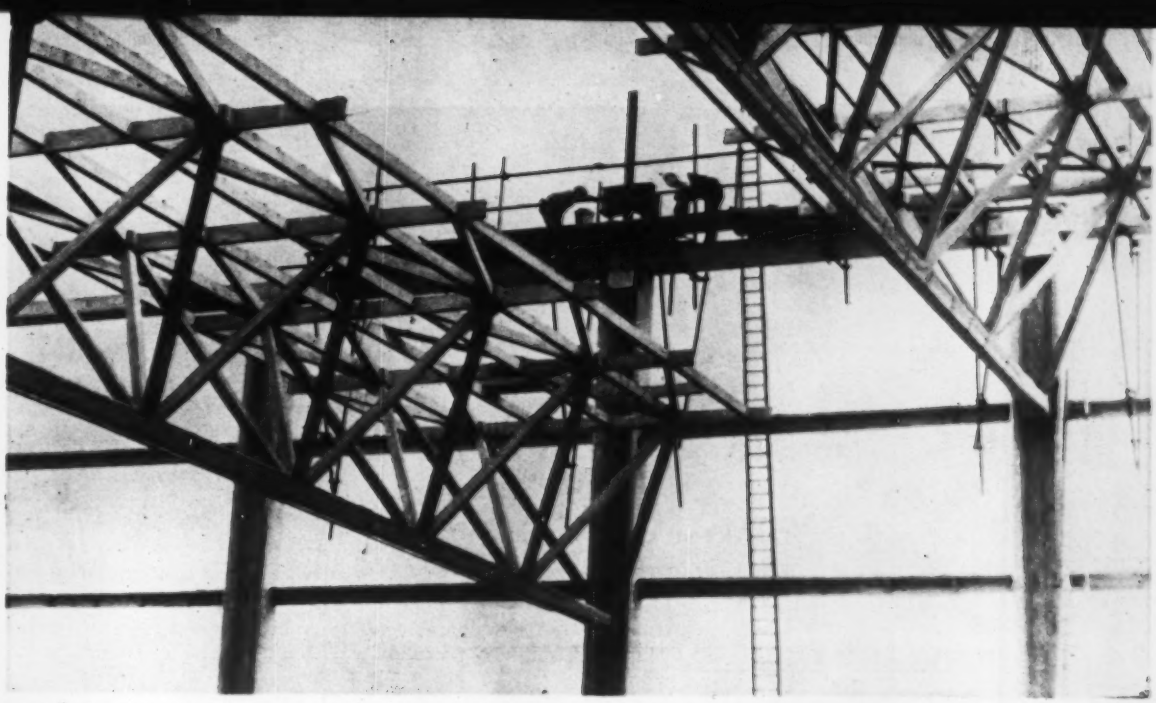
"Build an economical hangar—but one with some prestige value, too."

Architects with that assignment from Transair, Ltd., an English charter airline, studied several designs and framing systems for a maintenance hangar at London's Gatwick Airport before settling on this one. It's all concrete.

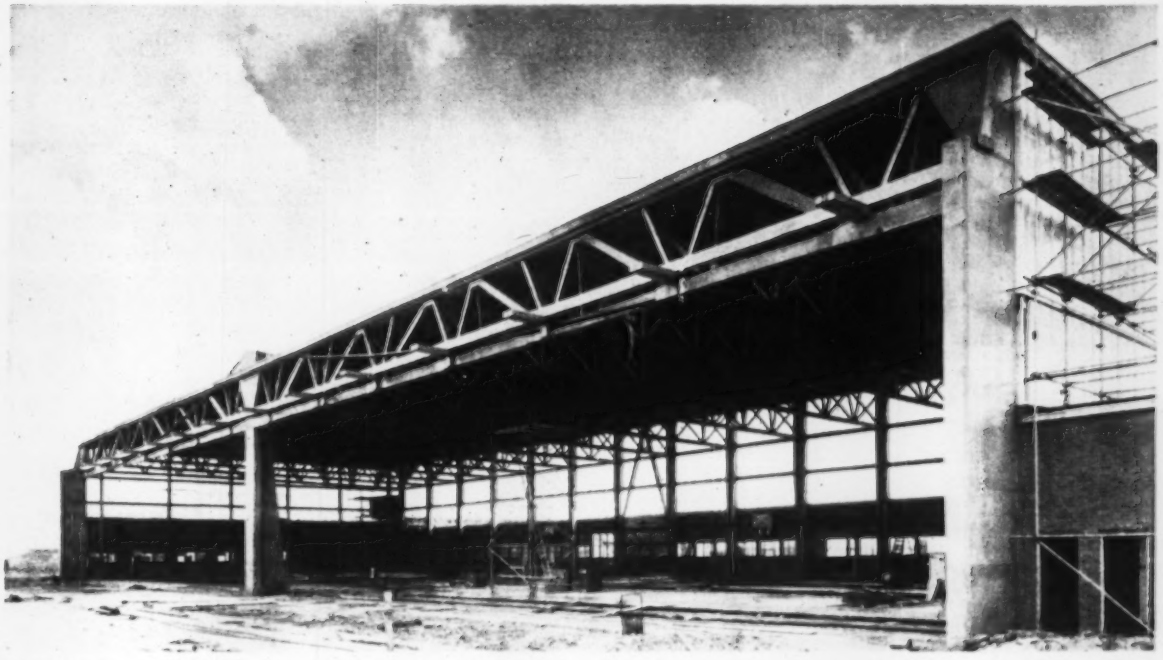
They picked concrete instead of steel framing because of lower maintenance cost, though both systems offer the same advantages of appearance and initial cost, the architects report.

The hangar is 280 ft long, 110 ft deep and 41 ft high, with a clear inside height of 30 ft. There are no interior columns. Precast concrete space trusses, 8 ft 8 in. deep and triangular in section, span 105 ft from front to rear of the building. They're carried at the front by a 9-ft-deep precast concrete truss with two 140-ft spans, and at the rear by channel-shaped columns, 20 ft c-c.

The triangular trusses, 20 ft c-c, have



Trusses were jacked into place from above after assembly on the floor.



Cables draped from a center column helped carry the front truss along length of hangar.

Trusses Carry a Hangar Roof

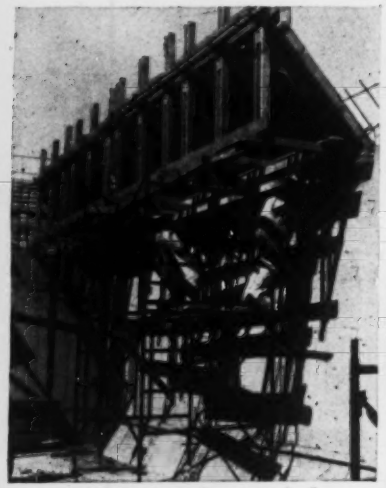
single bottom chords with a 90-sq-in. cross-sectional area. Groups of four, 5x5-in. diagonal struts branch up and out from the bottom chord every 10 ft to meet a pair of upper purlins spaced 10 ft apart.

These purlins, plus a pair between and alongside them, were designed as integral parts of the space truss. Measuring 4x6 in. in section, the purlins are spaced 3 ft 4 in. c-c. Horizontal diagonals in the roof plane help spread the truss action over a 17-ft.-wide section of the roof. Lateral struts, 8x3 in. in section and running the entire length of the roof, brace the top purlins.

Space-truss members were precast and assembled on the hangar floor. (Minimum concrete strength was 6,000 psi at 28 days. Maximum design stresses were 1,500 psi in compression and zero in tension.)

Diagonal members of the space trusses were post-tensioned with one to

"Y" Wall Forming

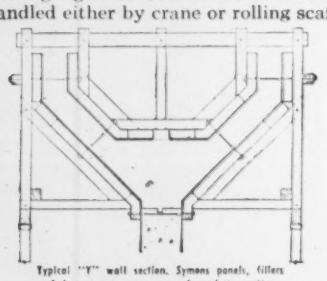


Gang Forming Licks "Y" Wall Problem

Pays Off in Quality Pours, Speed and Reduced Costs

2,665 lineal feet of "Y" walls and half "Y" walls, with 16'-9" high walls on a tank addition to a sewage treatment plant—that was the pouring problem faced by contractors, Wander & Mason of Worthington, Ohio. They solved the problem by pouring the walls in three lifts with the forms ganged for the final "Y" and half "Y" pours.

On the "Y" walls Symons standard panels, fillers, inside and outside bay corners, which were eight feet long, were ganged in 16-foot sections and handled either by crane or rolling scaffolding. One 16-foot outside section was stripped, moved to the next wall section and reset by three men in 20 minutes.



Typical "Y" wall section. Symons panels, fillers and bay corners were gang formed in sections.

Symons Forms, Shores and Column Clamps can be rented with purchase option. Information on Symons products is available upon request.

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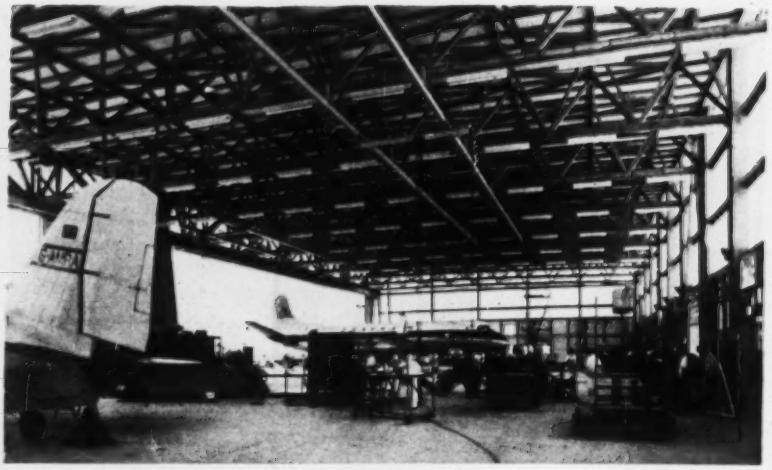


ROOF TRUSSES span between channel-shaped columns at rear of hangar and a two-span, 280-ft long truss across the front.

CHARTER AIRLINE'S HEADQUARTERS maintenance hangar is sheathed in translucent sandwich panels of glass with glass-fiber lining.

four wires, depending on their position in the trusses. Bottom chords were post-tensioned with parallel-wire cables laid in open grooves on both battered sides of the members. Diagonals were grouted and the bottom chords packed with mortar after tensioning.

To make erection easy, crews assembled the trusses on the hangar floor just under their final positions in the completed hangar. Only a single vertical lift was necessary to place them.

At the rear of the building, two jacks were placed at the tops of the channel-shaped columns. At the front, two pairs of jacks, one pair per top purlin, were set up on steel scaffolding.

On the hangar floor, workers attached steel lifting straps to the bottom chord at the rear and to the top chords at the front of a truss. On the column tops and scaffolding, crews bolted jacking frames to the straps and set hydraulic jacks beneath them.

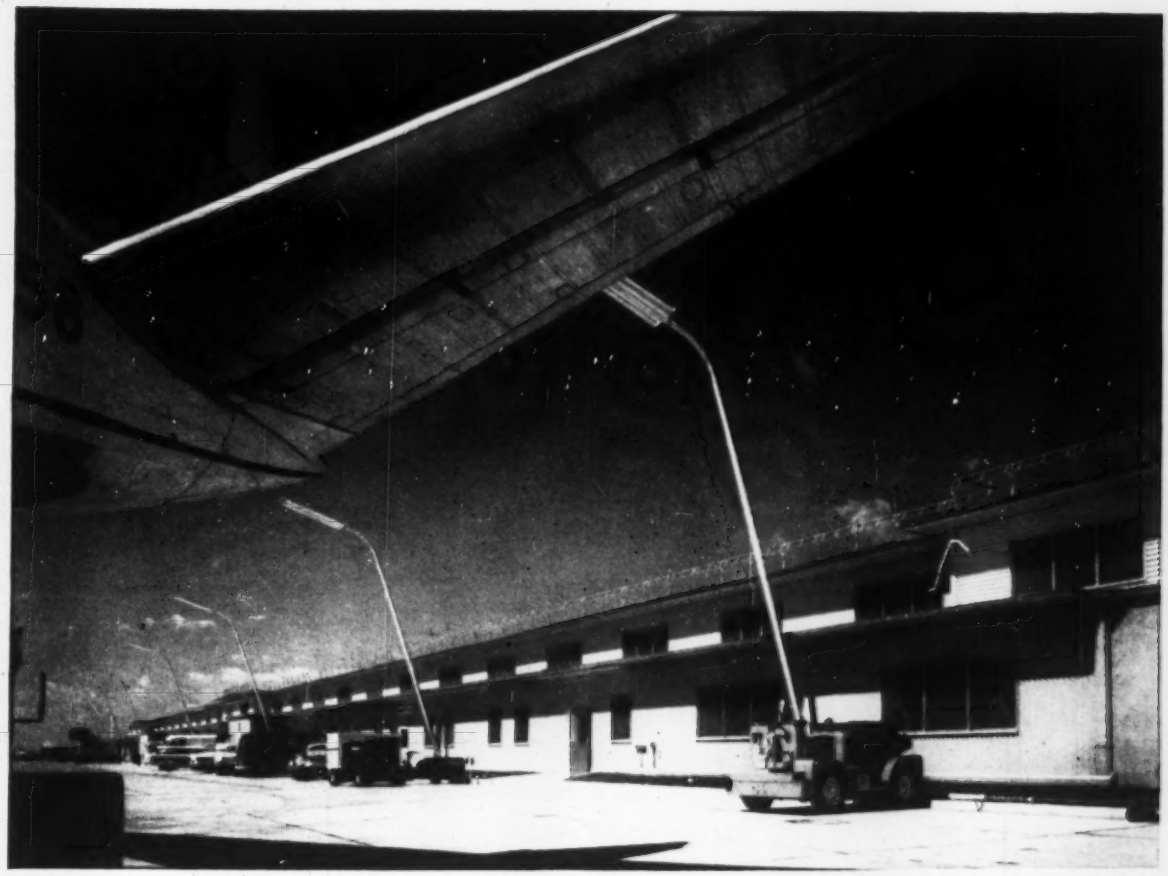
Using short reach jacks, crews lifted the truss a few inches at a time. At each stage, they pinned the lifting straps, then shifted the jacking frames down to lower holes on the straps to repeat the process. At the rear of the hangar, the channel in the column guided the end of the bottom chord during the lifting operation.

Then, crews formed the two-span truss at the front of the hangar by joining end frames of the space trusses to horizontal and diagonal precast units. The entire main front truss was prestressed with two exposed parabolic cables on opposite faces of the truss. Draped from the top of the midpoint column to the level of the bottom chord about 20 ft in from each end, the cables extend to the ends of the building. Each main cable consists of four parallel-wire cables, each with twelve 0.276-in.-dia. wires.

With hangers between cables and bottom chord of the truss, the cables act very much like the main cables of a suspension bridge.

In the second step, the lateral struts running the 280-ft length of the hangar were post-tensioned to tie the entire frame together.

(*Continued p.* 36)



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has many moneysaving uses for airport construction

This is Pier 3 at the Miami International Airport, Dade County, Florida. Its attractive Ruberoid Corrugated Asbestos Siding is durable, 100% incombustible, has solved many construction cost problems.

Completely inorganic Ruberoid Corrugated Asbestos wards off the action of acids, alkalis, sulfides, steam, and smoke; offers secure protection under all climatic conditions. It does not rust or corrode; never needs painting to preserve it. It is not attractive to insects, vermin or rodents.

Underwriters' Laboratories, Inc. rates Corrugated Asbestos as:

Combustibility—0
Flame Spread—0
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Incombustible Ruberoid Corrugated Asbestos cannot ignite or aid a fire. It is not an electrical conductor; does not contribute to galvanic action.

Building costs are lower when rocklike Ruberoid Corrugated Asbestos Siding is used. No sheathing necessary. Faster erection—it permits skeleton framing, with lighter footings and foundations. It is nonrattling, free of upkeep.

Complete specifications are yours on request. Write The RUBEROID Co., Industrial Products Division, 500 Fifth Avenue, New York 36, N. Y.

The RUBEROID Co.®

ASPHALT AND ASBESTOS BUILDING MATERIALS

Proved Cost Saver

CURE and SEAL CONCRETE WITH 1 PRODUCT

THOMPSON'S WATER SEAL

Eliminates wet sacks, papers, hosing and spraying

Spray deep penetrating, colorless Thompson's Water Seal on fresh concrete to cure and seal in one operation. Save time . . . save labor.

Effectively controls moisture loss for 28 days and beyond.

Assures uniform curing even in hot, dry weather.

Helps reduce checking, cracking, spalling.

Produces harder, dust-free surface.

Eliminates waterproofing concrete floors.

Permits adequate time for smooth troweling.

Send for technical bulletin and Contractors Case History file.

A proved bond breaker for pre-cast, tilt up and lift slab construction. Permits easy, clean separation of slabs, walls, pre-cast members.

Available in 5 and 55 gallon drums from building supply stores, paint and hardware dealers.

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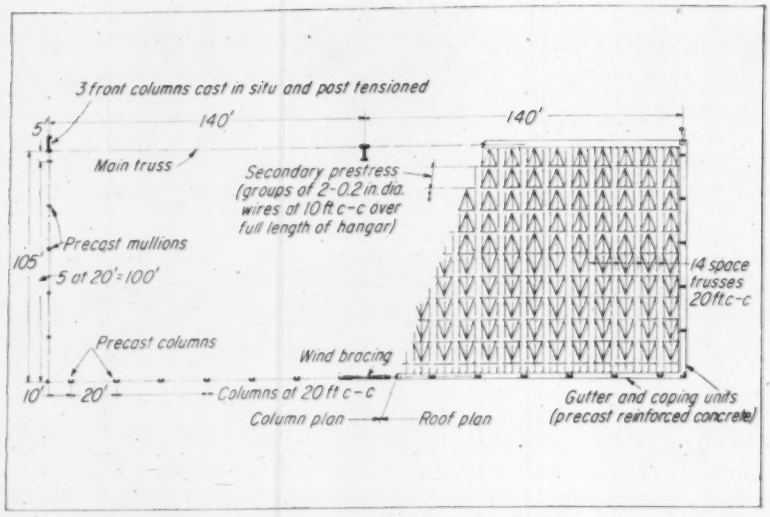
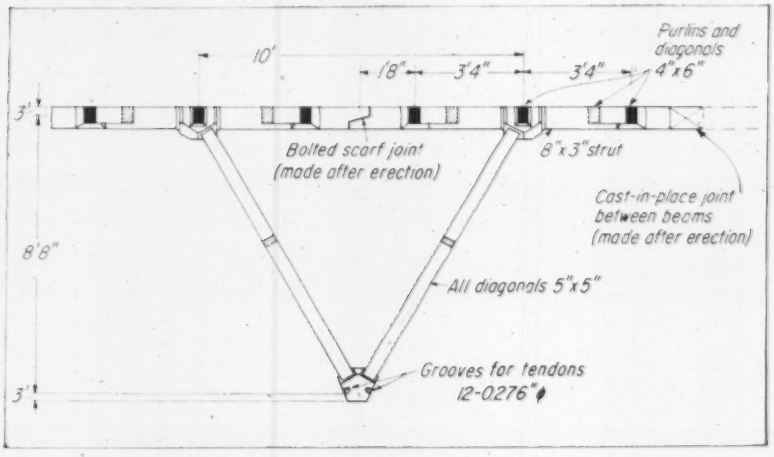
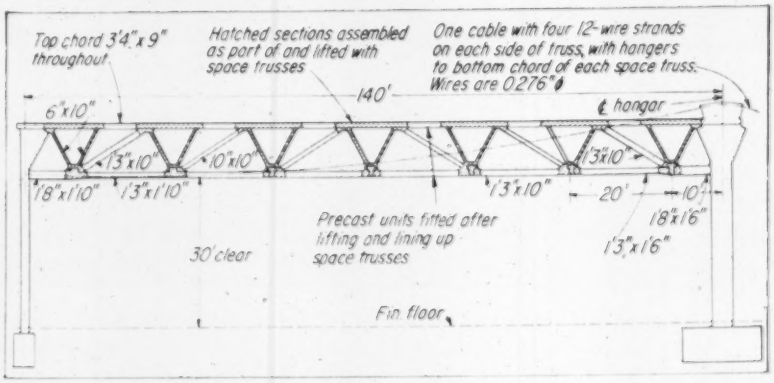


HANGAR ROOF RESTS on two-span truss and on columns at 20 ft c-c.



INDIVIDUAL SPACE FRAMES were post-tensioned with tendons in bottom-chord.



MAIN TRUSS was formed by joining end frames of roof space trusses together.

Last came roofing and siding. On top, workmen laid down panels of compressed, resin-bonded straw—bound in heavy building paper. Over this went builtup asphalt roofing. Siding panels consisted of glass fiber sandwiched between two sheets of glass.

Architects for the hangar were Clive Pascall and Peter Watson. Concrete frame design was by the London Ferro-Concrete Co., Ltd., and structural engineers A. J. and J. D. Harris. General contractor for the project was Sir Alfred McAlpine and Son, Ltd.

After this modern hospital was completed in 1954, the Children's Clinic was added to the right wing in 1958. Lehigh Mortar Cement helped both contractors produce top quality masonry work.

"WORKABILITY—UNIFORMITY" with Lehigh Mortar Cement

Lehigh Mortar Cement was used *throughout* this new Baptist Memorial Hospital in Jacksonville, Florida, including the Wolfson Children's Clinic addition (3rd and 4th stories of wing in right foreground).

Mr. Henry DuPree explains his firm's preference for Lehigh Mortar Cement: "We are well pleased with its sand carrying capacity and workability. It gives us a very uniform mortar and, thereby, a *saving on labor cost.*"

Try Lehigh Mortar Cement on your next job and discover its advantages for yourself.

Prime Contractor:
The Henry G. DuPree Company, Jacksonville, Fla.

Contractor For Wolfson Children's Clinic Addition:
Ruscon Construction Co., Charleston, S.C.

Architects:
Reynolds, Smith and Hills, Jacksonville, Fla.

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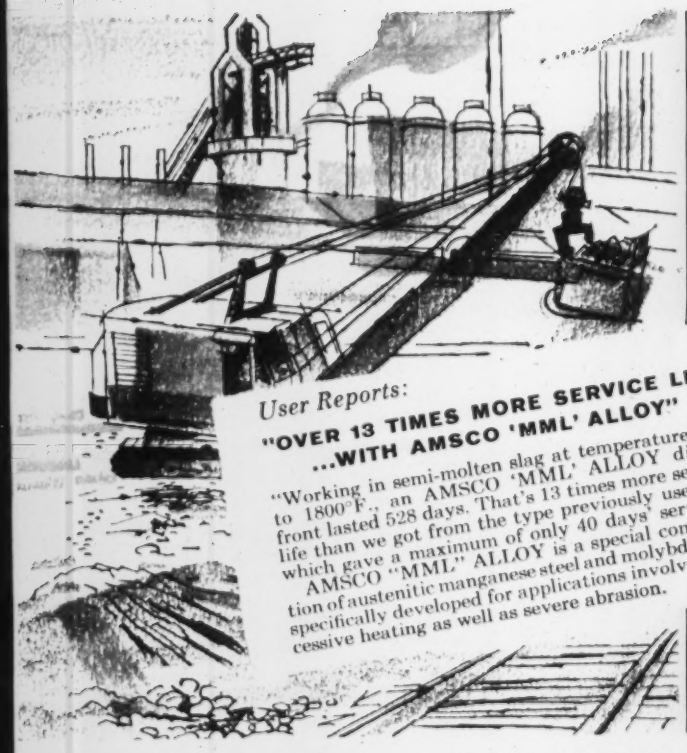
How AMSCO helps you MOVE



User Reports:

"OVER 13 TIMES MORE SERVICE LIFE ...WITH AMSCO 'MML' ALLOY"

"Working in semi-molten slag at temperatures up to 1800°F., an AMSCO 'MML' ALLOY dipper front lasted 528 days. That's 13 times more service life than we got from the type previously used . . .; which gave a maximum of only 40 days' service." AMSCO "MML" ALLOY is a special combination of austenitic manganese steel and molybdenum, specifically developed for applications involving excessive heating as well as severe abrasion.

User Reports:

"AMSCO SIMPLEX TOOTH GIVES 18 WEEKS EXTRA SERVICE"

"We're getting between 15 and 18 weeks extra service by using AMSCO Simplex dipper teeth", reports Mr. Fred Weber, Jr., Vice-President of Vigus Quarries, St. Louis, Missouri. "This gives us almost 4 times the service life we've been getting from standard teeth in our rugged limestone quarrying operation."

Mr. Weber also found that 2-part, reversible Simplex dipper teeth were so much easier and quicker to replace that his shovels were back on the job in no time.

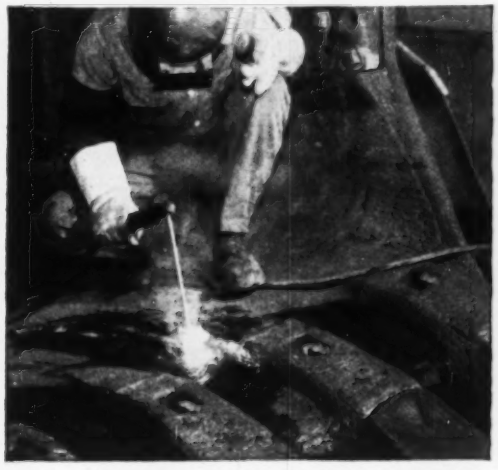
MORE TONS PER DOLLAR

For rugged digging, crushing, pumping, or rebuilding jobs... it pays to ASK for AMSCO!

AMSCO's sole job is to help you fight wear caused by impact and abrasion. AMSCO Manganese Steel—"the toughest steel known"— is today's number one choice for long-lasting dippers, dipper parts, crushers, tractor parts.

AMSCO Alloys, developed to meet unusual wear problems, add extra service life under special and very severe operating conditions.

AMSCO Hardfacing Materials permit economical build-up or repair of worn parts—at a fraction of the cost of new parts. Use this specialized know-how and broad line of "wear-fighting" products to help *your* equipment move **more** tons per dollar. Ask for AMSCO!



NOW...WELD MANGANESE AS EASILY AS MILD STEEL

"We're getting just the kind of welds and build-up we want with good cost saving to boot," says a user of Nicro•Mang rod. From all over, in a variety of hardfacing applications, reports of success with AMSCO NICRO•MANG are coming in. Users like the stable arc, and wide range of arc length . . . the non-popping, the easy removal of slag . . . and above all the fast build-up. For high strength, superior crack resistance, and easy welding, Nicro•Mang is unbeatable for fabrication and build-up of manganese steel.

"29 YEARS WITH THE SAME 8" AMSCO PUMP"

Haskell Peel, Plant Superintendent at Consolidated Gravel Company, Columbus, Georgia, has shared many experiences with his 8" AMSCO PUMP. One of his favorites is the time that he and his pump almost dried out a lake to recover a sunken dredge. He hooked the 8" AMSCO to more than 1,000 ft. of 10" pipe, and ran it continuously for three days. No wonder the pump is his pet . . . it's been doing the job, pumping 75% sand and 25% gravel, for more than 29 years.

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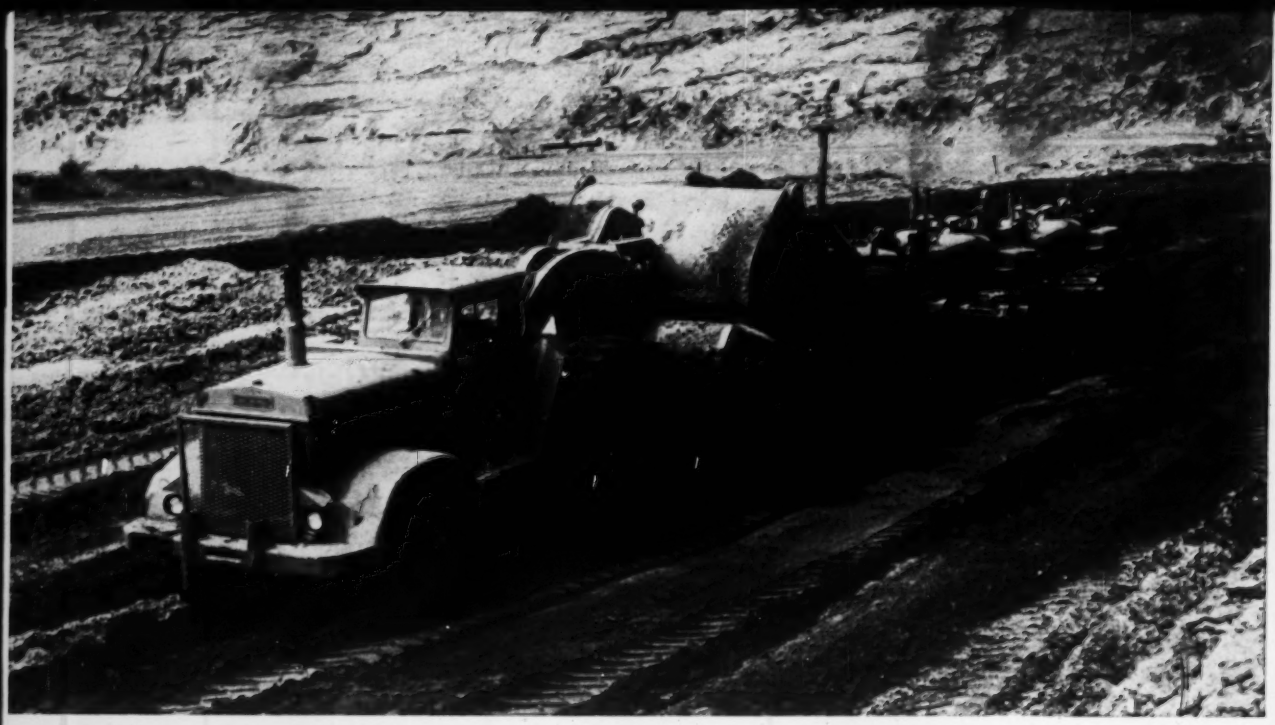


Six power plants load dirt: scraper and both tractors are twin-engined.

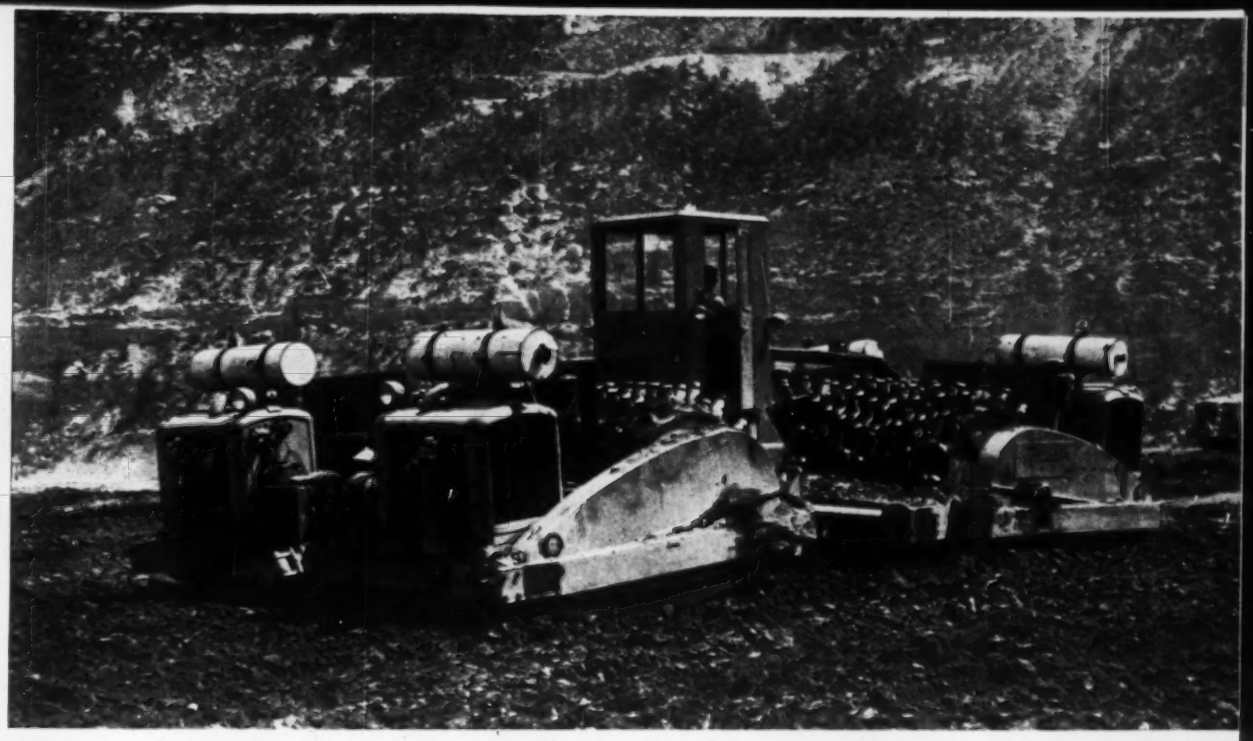
Big Rigs Push Navajo Dam Fill

Effective equipment and a construction plan that takes maximum advantage of favorable site and borrowpit conditions are making a calculated risk pay off at Navajo Dam, on New Mexico's San Juan River.

With the help of big earthmoving equipment and unusual compaction machines, the contractor has placed more than 5.4 million cu yd of earth

Shell material is excavated by walking crane with 17 cu yd bucket.

Trio of vibratory rollers



Four power plants make this centrally controlled multiple sheepsfoot roller self-propelled.

Far Ahead of Schedule

in less than a year. The huge earthfill project will need 26 million cu yd.

Such machinery as a 17-yd walking dragline, self-propelled sheepsfoot rollers and smooth surface vibratory rollers have placed as much as 600,000 cu yd of fill a month. And the contractor confidently expects to increase that figure to 1 million cu yd a month.

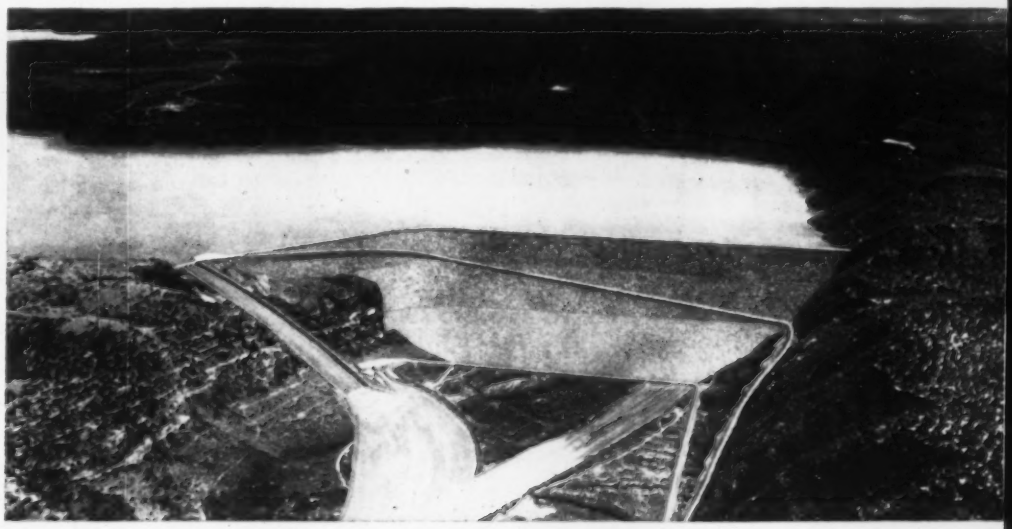
With that kind of production, the fill can be finished by the end of 1961—more than a year ahead of schedule.

Such fast construction is always desirable, of course, but on this job it's a must. The work is being done on a low bid of only $22.8 million.

The contractor—Morrison-Knudsen Co., Inc., as sponsor in a joint venture with Henry J. Kaiser Co. and F & S Contracting Co.—points out that some bid items are comparable to those that were being registered in the early '30s. Example: 36 cents per cu yd for excavation and transport of the fill.

• **Dam and damsite**—Navajo Dam will be 383 ft high and 3,800 ft long and will form a 1,712,000 acre-ft reservoir. It is a unit of the Colorado River Storage Project being built by the U. S.

compacts shell.



Navajo Dam plugs the San Juan River in New Mexico.

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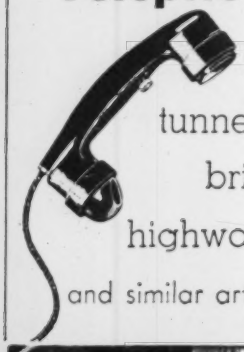

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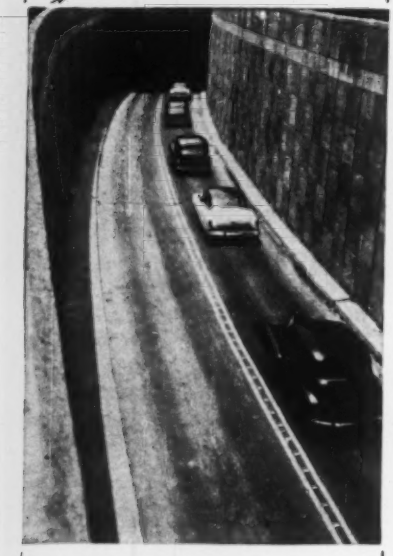

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. . . Dam fill ahead of schedule

Bureau of Reclamation. The storage project also includes Flaming Gorge Dam in Utah and Glen Canyon Dam in Arizona.

Major purpose of all three is to regulate the flow of the Colorado River system and permit greater water use in the upper basin states. In contrast to the other two Colorado River project dams, Navajo will not generate power, although its outlet works are designed for possible later addition of generating facilities.

The Navajo site, as noted, offered favorable conditions for the contractor. Thus, while the diversion tunnels were being driven, he could move the river into an artificial channel up against the left abutment, and place as much as six million cu yd of fill before it became necessary to divert the river. He could also perform foundation excavation and grouting on more than half of the dam.

Favorable, too, is the nature of nearby borrow areas, up and down stream, in which both impervious material for the dam core and pervious material for the shell are available.

The location of these borrow areas in the riverbed, however, is not so favorable, since all materials must be hauled uphill for placement in the dam. This requires the contractor to use the most powerful earthmoving equipment available. But the Navajo site offers other advantages: all foundation excavation is suitable for fill; and material can be taken from a high riverside terrace for topping out the dam. The only material lacking nearby is riprap. The 150,000 cu yd needed will have to be hauled 50 miles.

• **Excavation and haul for core**—The contractor is exploiting the upstream borrow areas first, since they are apt to be inundated after diversion. Beneath the topsoil is a 10-ft layer of fine grained silts and soils ideal for the impervious core material. Under this is an even thicker layer of fairly well graded gravel and cobbles, extremely well suited for the pervious portions of the shell surrounding the core.

Before any excavation, water is applied by sprinkler irrigation to increase the moisture content of the impervious core material. This may occur as much as six months in advance, with the sprinklers running for as long as 30 days.

The core material is excavated by carrying scrapers that can handle a 27-cu-yd load. These scrapers are mounted on rubber tires and are hauled by a four-wheel tractor unit. They have a second engine mounted on the rear for more power on uphill grades. They average 35 mph on the flat and can run 8 mph fully loaded on 8% grades.

The scrapers are loaded by a team of two-motored, heavy-duty tractors. Loading power comes almost exclusively from the pair of tractors, the rear engine on the scrapers idling during the loading cycle.

There are 11 of these heavy-duty scrapers on the job. For an average haul of about a mile and a half, seven will work a borrow area, with another standing by in case of a breakdown. The rest will work a different borrow area, where they, as well as bottom-dump and end-dump trucks, are loaded by crane, shovel or elevating loader.

• **Mammoth dragline**—After the fine-grained silts are stripped off for the core zone, a mammoth walking dragline excavates the underlying gravels for the pervious zones of the dam. The unit mounts a 17-cu-yd bucket. It is expected to provide all the pervious fill—by far the largest single material classification in the project, amounting to 11,250,000 cu yd. This compares with 9,500,000 cu yd of core material and 5,400,000 cu yd of other fill.

Rather than deposit its material directly into the 30-cu-yd bottom-dump trucks used to haul impervious material, the walking dragline loads into a movable hopper mounted on tractor type treads. It is not self-propelled, but is moved as necessary, by a tractor.

The hopper is set as low as possible to keep the dragline bucket movement to a minimum. It has two hydraulically operated gates—a sliding type for wet material and a chute-type drop gate for dry material. A 75-kw generator furnishes electric power for the hydraulic pump motors. And there are air jets in the hopper to keep the material loose.

The purpose of the hopper is, of course, to avoid delaying operations of the heavy dragline. The number of bottom-dump trucks taking material from the hopper is varied as needed to keep up with dragline production, which has run as much as 8,000 cu yd per nine-hour shift.

• **Compaction equipment**—As notable as the huge dragline are the machines used for compacting the dam fill. For the impervious core material, the unit is a self-propelled tamping roller consisting of four sheepsfoot rollers 5 ft in dia and 6 ft long. Each roller is powered by an individual engine, with the four engines connected by a common throttle.

The impervious material is spread as it is dumped by the scrapers. A tractor drawn disc harrow and land plane is then used to insure complete processing

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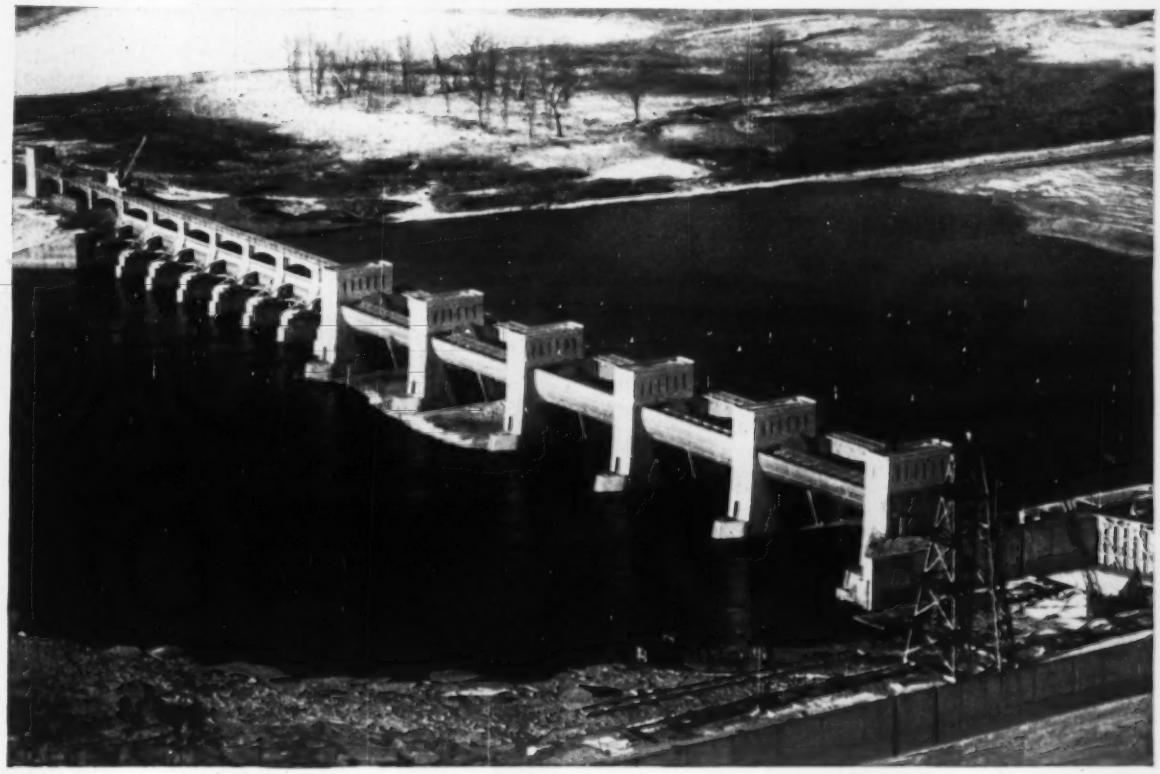

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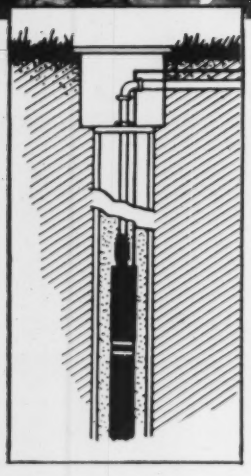

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. . . Navajo Dam

and leveling prior to final compaction in layers of 6-in. or less.

With proper moisture in the material, the specifications require 12 passes of a standard sheepsfoot roller. The self-propelled roller assembly, having two pairs of rollers in tandem, can thus accomplish the necessary compaction in six passes.

At first there were some minor bugs to be worked out of the roller assembly, including beefing up of the exterior axle suspension, but the unit is now operating satisfactorily, and the contractor expects it to keep up with all impervious fill compaction requirements.

For the gravels that form the pervious zones of the dam, compaction is obtained with three solid steel vibratory rollers assembled in a V-formation for hauling by a single tractor.

This is one of the first times that such vibratory compactors have been used on dam fills. The specifications required that the pervious material be compacted in 18-in. layers by a 40,000-lb tractor. But since it would actually be the vibration of the tractor rather than its great weight that would provide the compaction, the contractor asked that vibratory rollers be permitted.

• **Future schedule**—Diversion is now planned for October or November through the first of two tunnels to be constructed as part of the permanent outlet works for the dam. One tunnel, now under way, is about at river level and will be concrete lined to 18 ft 9 in. dia. A second tunnel, 7 ft in dia inside its concrete lining, will be driven later 40 ft higher.

The contractor will have to work through the winter to build the fill up to a level that will be safe from next year's high runoff, which usually occurs from May through July. Last winter was extremely mild, but such a break cannot be counted on again, so the contractor is tentatively planning on working three eight-hour shifts, seven days a week. Keeping the fill "live" will prevent it from freezing, even under severe cold conditions. Present fill operations are on the basis of two nine-hour shifts, working five days a week.

W. W. Brenner is project construction engineer for the Bureau of Reclamation. Serving with him are E. D. Henry as field engineer and J. D. Seery as office engineer.

For the joint venture, the job is under over-all supervision of B. L. Perkins, district general superintendent for Morrison-Knudsen. H. D. Gard is project manager and Max Daley is project engineer.

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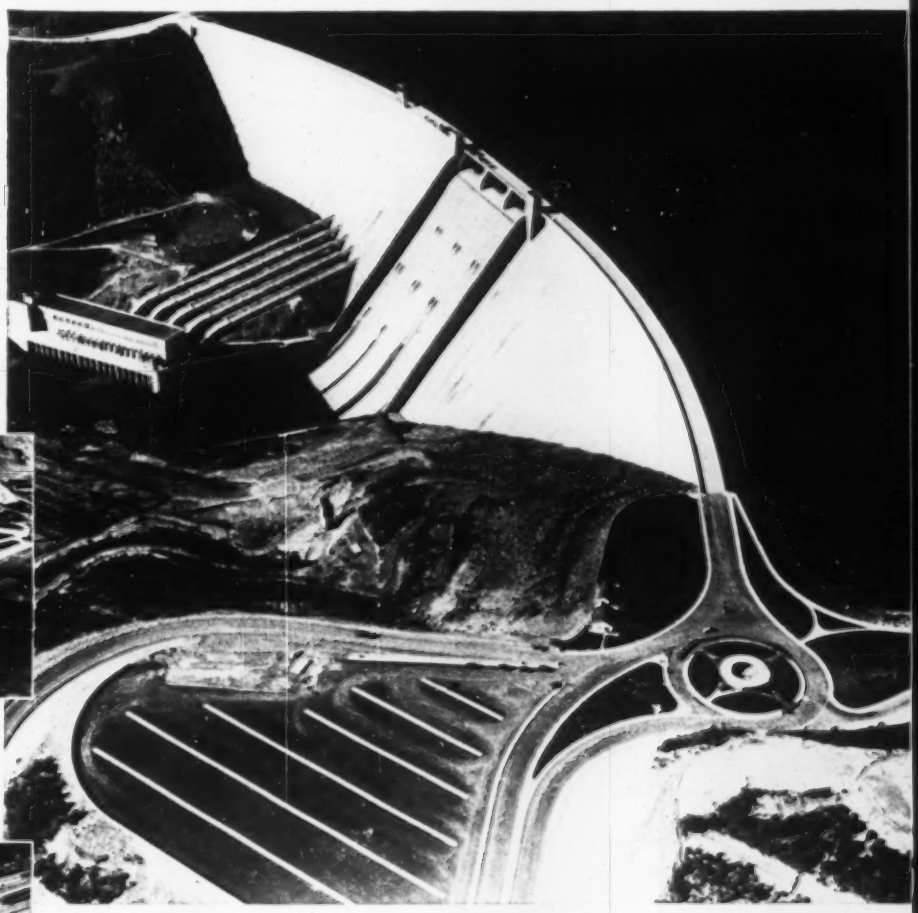
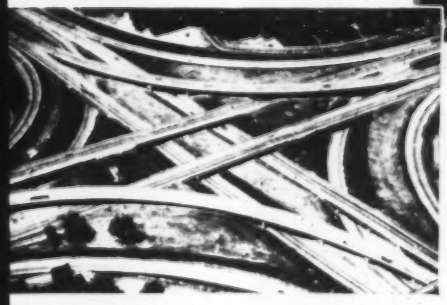


Right: This dramatic view of Shasta Dam in California demonstrates the progress made by construction engineers in conserving water supply, preventing flood destruction and providing water needed to make arid land useful again.

Above: To meet the challenge of the jet age, engineers and contractors are being called upon to build and expand airport runways to handle increased traffic. (View shows Lambert Field, St. Louis.)



Above: This view of one of the interchanges on the high speed Detroit expressway is a striking example of the contribution the construction industry is making to the tremendous highway program.

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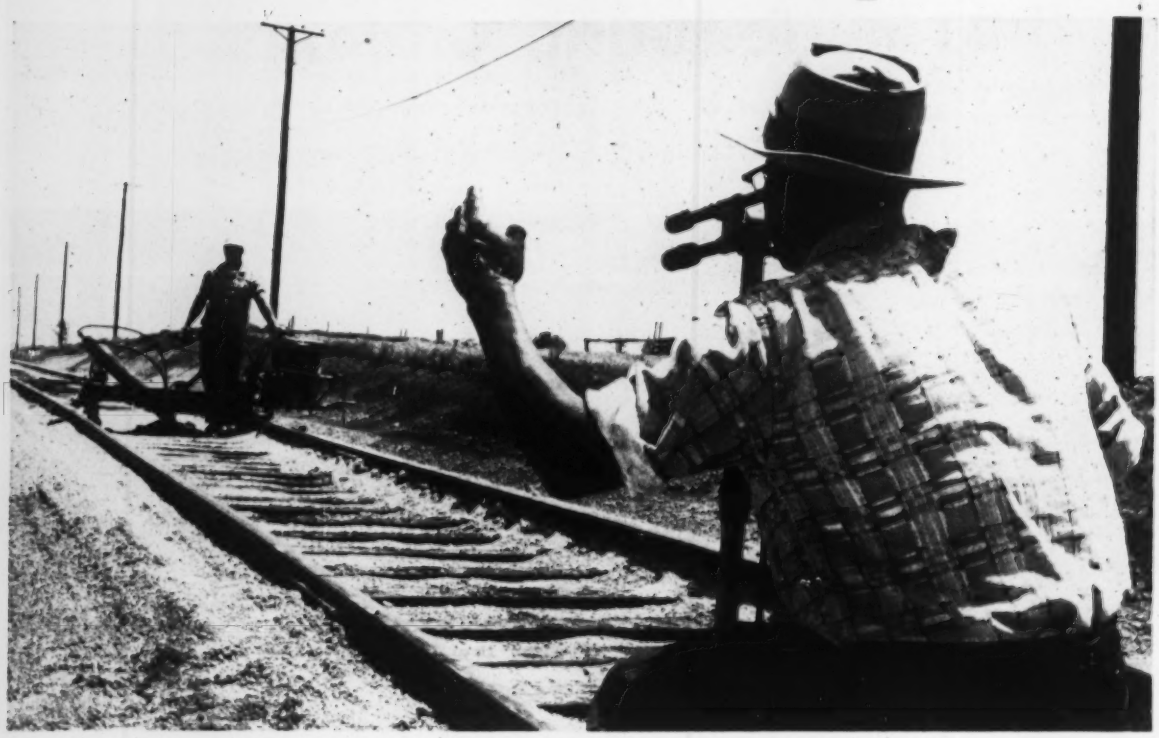
Mechanization Saves Manpower on



Track aligning machine (rear) is an hydraulically operated power unit. With a single operator, it handles a job that formerly required a crew of eight to 12 men, depending on the rail section and the type of ballast used. Aligning scope, being used by man in foreground, clamps to rail for simplified sight alignmeat.

Truck-rail crane has flanged wheels inside its pneumatic tires. Remote controls permit operator to move the unit on rails without leaving the cab of the crane. Crane mounts rails at a crossing, travels with tires half inflated.

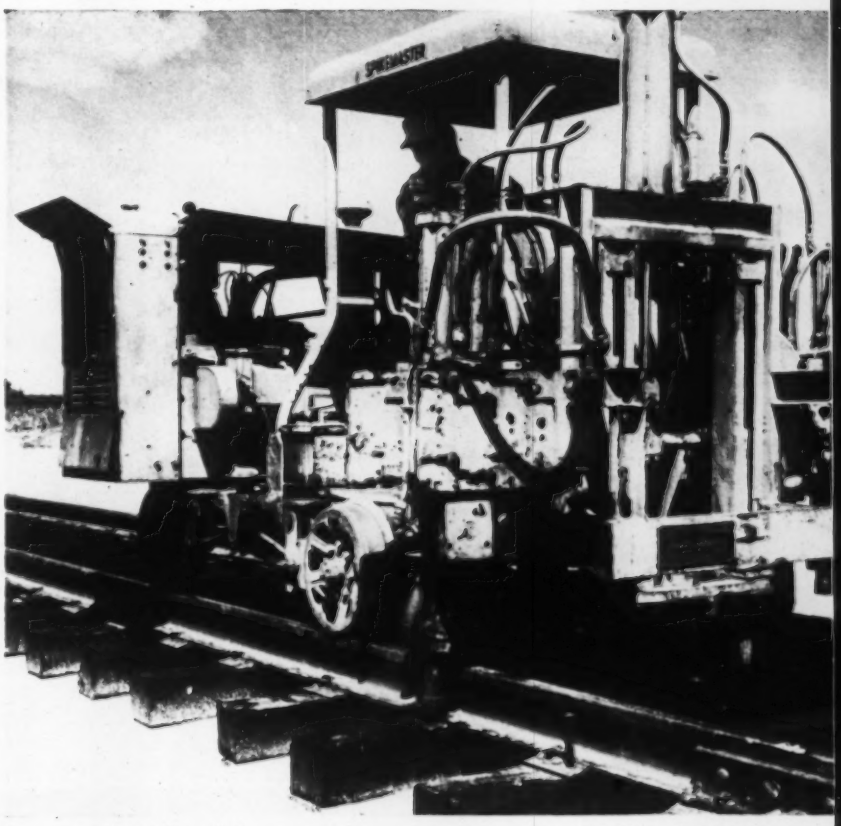
Track Work

Organization and mechanization have made it possible for a railroad constructor to do a job with 29 men where otherwirse 72 men would be required.

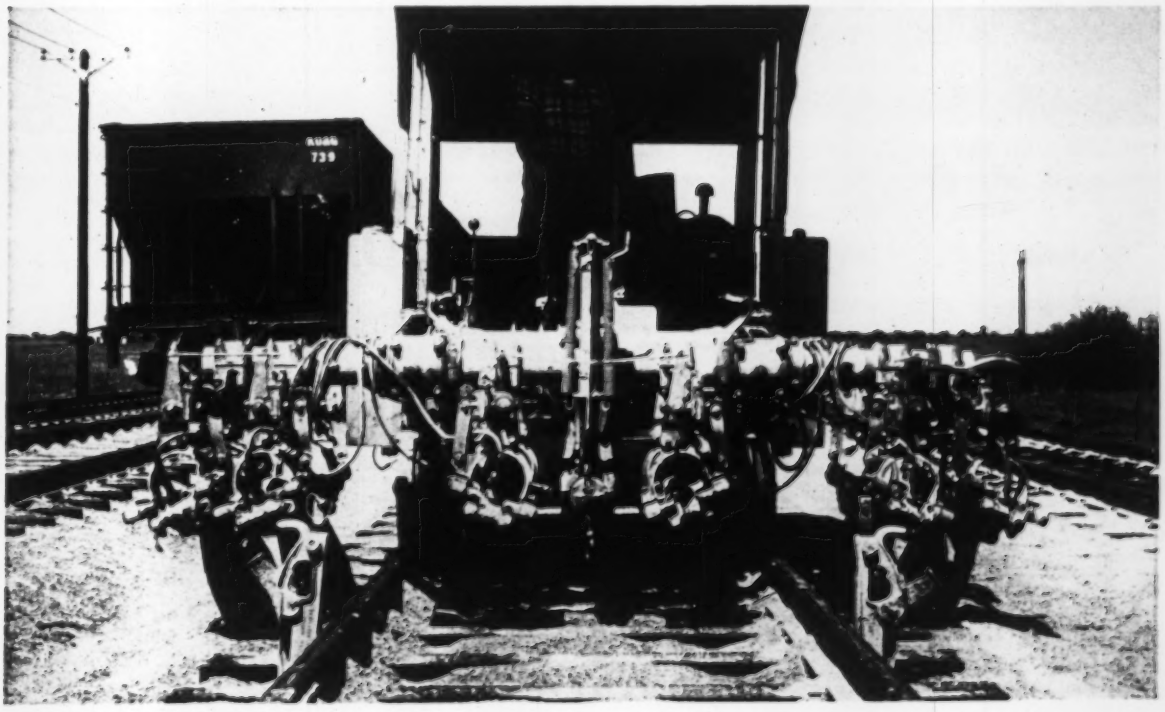
The job involved constructing 11 miles of track to serve a 5,300-acre industrial park located between Dallas and Fort Worth. Built for the Great Southwest Railroad, reportedly the only new railroad corporation to be certified in the southwest in half a century, the new line connects with both the Texas Pacific and the Rock Island Lines.

Designed by Powell and Powell of Dallas, the project includes eight major bridges, which were erected by Harry Newton of Graham, Tex. Two of the bridges are of prestressed concrete. One of these, crossing the Dallas-Fort Worth Turnpike, has a 70-ft span. The other is a 420-ft crossing of Highway 360.

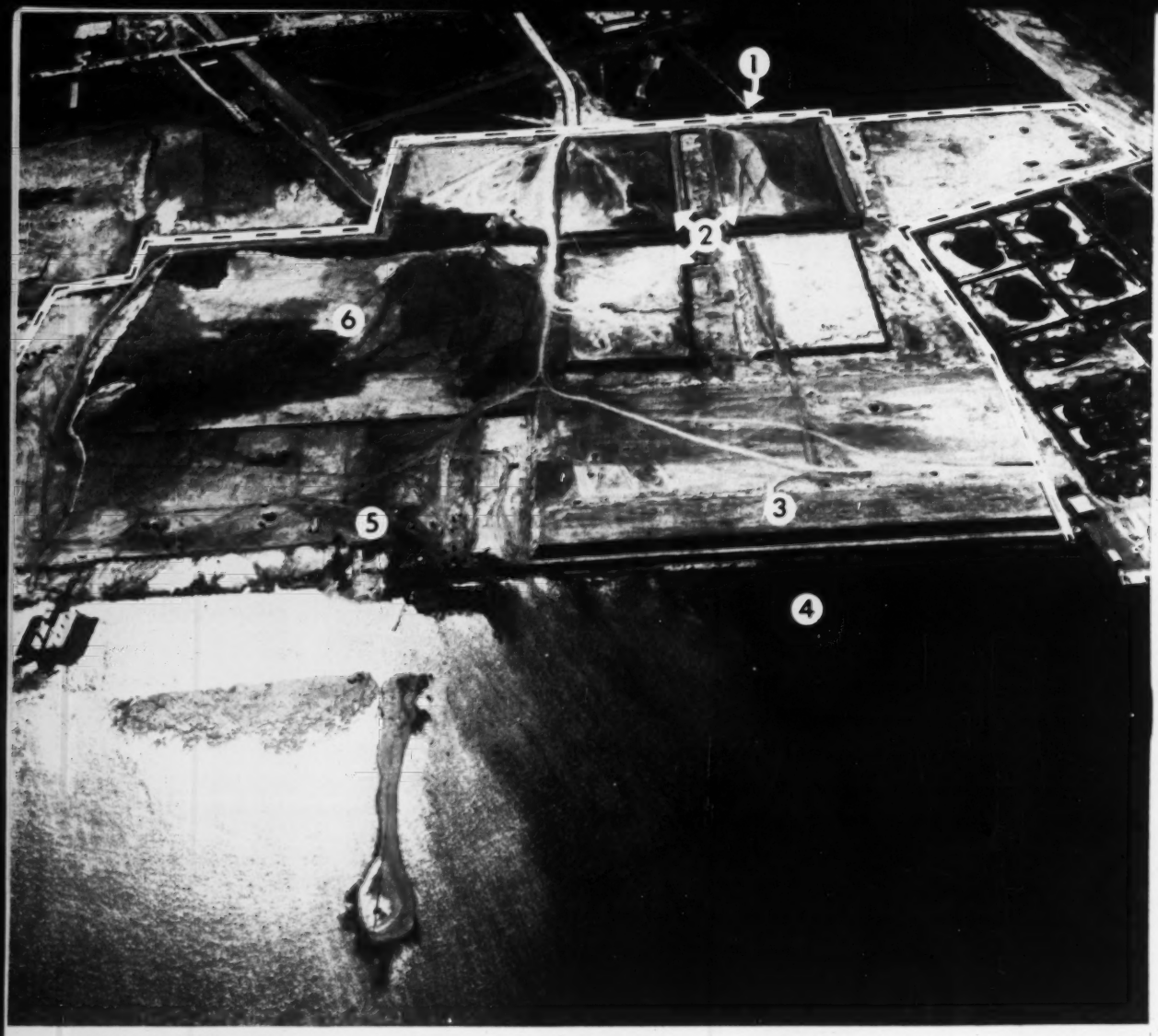
But it was on the track work, done by W. E. Nichols & Co., Dallas, that the mechanization played such an important role. Because of his equipment the contractor not only saved on manpower, but was able to conduct six phases of his operation simultaneously. These included distributing materials, setting ties, laying steel, regulating, surfacing and aligning track. Here's some of the equipment used.



Automatic spike driver, with one operator does work that used to require nine men. It straightens each tie, and has four pneumatic hammers that drive all four rail-holding spikes, either simultaneously or in any combination.



Multiple tamping machine is self-propelled by a gasoline engine but it uses an electric vibratory method to tamp and compact ballast into place under and around the ties. It is controlled by a single operator.



ON SAN JUAN BAY a new central market area (1) is being consolidated with sand drains. Overloads are sites of future warehouses (2) and transit shed (3) along wharf (4). River drain enters bay (5). More warehouse sites will be developed (6).

Making a Market Out of a Swamp

Sand drains are being used to consolidate 25 to 40 ft of soft, compressible material over a 100-acre area in the southwest corner of San Juan Bay. It is probably the largest single area ever consolidated this way. In all 33,500 drains, 30 to 45 ft long, were used.

The central market development will have 68 acres of market facilities and 32 acres of port facilities. The market is primarily for the food industry and will include warehouses, wholesale market buildings, administration buildings, restaurants and other services. The port area will have a four-berth marginal wharf backed up by transit sheds and open storage areas. The Puerto Rico Ports Authority is the construction agency for the project.

The best site available was adjacent to an existing channel and two berth wharf at the corner of San Juan Bay.

But this site presented three major problems: It was low lying and swampy; it was underlain by 25 to 40 ft of soft compressible strata; and the Puerto Nuevo River passed through the site.

• **Moving a river**—The Puerto Nuevo River drains a considerable area and was subject to troublesome flooding. In February, 1956, work began on enlarging and rerouting 10,000 ft of this stream and 5,200 ft of tributary creeks, to alleviate the flooding problem and remove the river from the project site.

At one location 790 ft of concrete retaining walls had to be constructed to pass the new channel between two housing projects and the channel also had to be widened and paved under an existing highway bridge.

Most channel excavation was performed by a 15-in. hydraulic dredge that started in San Juan Bay and ate its way in to form the new channel. The balance of the excavation was done by draglines, often working on mats to prevent sinking into the mangrove swamps.

(Story continued p. 50)

By Steven S. Cooke-Yarborough, *who was born in Singapore, educated in England, served in India and Burma during the war and then studied soil mechanics at Harvard. In nine years with Tippetts-Abbett-McCarthy-Stratton, he has worked on projects from Liberia to the Canadian Arctic. He was resident engineer on this port work in Puerto Rico.*

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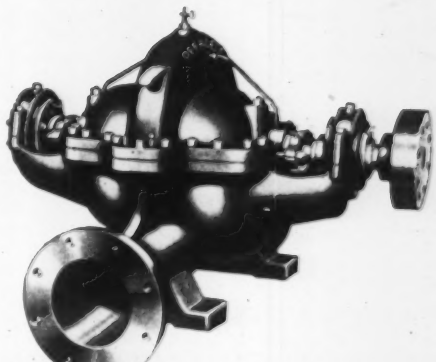

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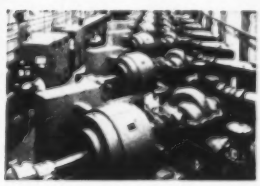

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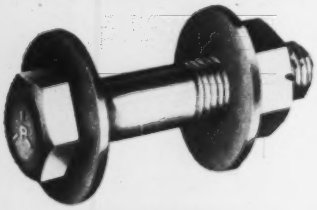

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. . . Making a market out of a swamp

Work on the river diversion was completed in February, 1957; 600,000 cu yd of excavation, 2,000 cu yd of concrete and 16,500 sq yd of dumped riprap had gone into the work.

• **Main project**—One-third of the area to be filled had been used as a spoil area for channel dredging eight years before. The remainder was dense mangrove swamp—under water, or barely above. Soft organic silt extended from the surface down to firm residual clay —25 to 40 ft below. Peat and sand lenses were encountered in the silt.

The average future grade of the area is to be El. + 7 and building floors are to be 3.5 ft above this. The fill required will cause consolidation and settlement of the foundation soils. Costly construction and maintenance would result unless settlements were removed before utilities and buildings are constructed.

Accelerated preconsolidation of the site was necessary and vertical sand drains and overloads were the answer. This method has been used extensively, but usually on areas of relatively narrow width, which simplifies the removal of the water that reaches the surface through the sand drains. The Central Market Project, on the other hand, formed an approximate rectangle 2,000 x 1,500 ft.

After the area was cleared and a 4-ft-thick sand blanket pumped over it, 18-in.-dia sand drains were driven on 15-, 10- and 8-ft centers. The 33,500 drains add up to a total footage of 1.35 million ft.

• **To promote drainage**—Generally, it's sufficient to allow the sand drains to discharge into the sand blanket from which the water escapes by seepage through the edges of the blanket. On this project the distance of the interior portions of the blanket from its edges made it probable that a sufficiently fast rate of seepage through the blanket could not be obtained. A system of drains was installed to ensure adequate drainage of the blanket.

The drainage system has three parts.

• In the old Puerto Nuevo River channel, three 30-in.-dia perforated corrugated metal culverts were installed in a bed of sand and gravel of high permeability. These culverts extend clear through the middle of the project.

• Feeding into this main collector drain is a series of laterals consisting of open joint concrete pipe surrounded by sand and gravel.

• The third element of the system is a series of sub-laterals feeding into the laterals. These sub-laterals are simply trenches filled with high permeability sand and gravel.

Both laterals and sub-laterals were designed to be constructed at minimum cost. A triangular cross-section of ditch was used as it allowed excavation to be made by a grader with tilted blade working off the top of the sand blanket.

The steady flow observed issuing from the ends of the piped laterals, and the fast rates of settlements recorded, were graphic evidence of the efficiency with which the systems worked.

• **Fill and overload**—After drains had been installed in any sizable area, the contractor started to place fill—to raise the general level of the area and to overload specific building areas.

Low shearing strength of the foundation soils made it necessary to place fill in lifts, thicknesses of which were controlled to prevent shear failures from occurring at the edges of the loaded areas. A waiting period of eight weeks was specified between the placing of lifts at any given location to allow the foundation soils to consolidate and build up additional shear strength.

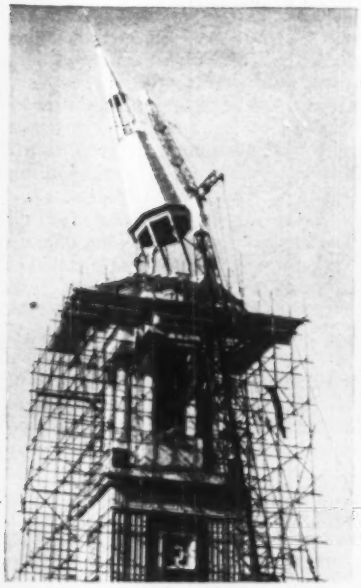
Each building area is being overloaded to an amount calculated to cause the design settlement to occur by a given date. These dates were chosen in accordance with a proposed building construction and use schedule.

For example, the first building areas required are overloaded more heavily than the areas required three months later than the first, and so on. Thus the fill placed is held to a minimum.

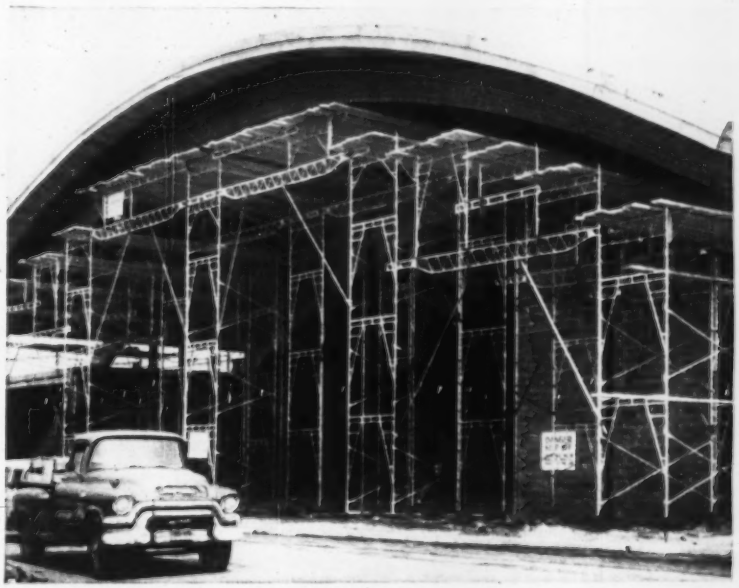
After the design settlement has occurred in an area, the overload fill will be removed and will be reused for filling or overloading the next areas to be developed. In general, the maximum economy resulting from the use of sand drains and overload is realized at sites where the overload material can be reused for subsequent phases of a general development. In planning such developments it should always be kept in mind that the longer the period that can be allowed for consolidation, the smaller is the amount of overload required—with resulting savings in the cost of the project.

• **Problem of bulkhead line**—A combination of the required filling for the high floor loading of the transit sheds and 32 ft of water required at the wharf produced instability of the north edge of the project. This was solved by dredging 862,500 cu yds of silt to form a wide trench. Benched slopes along the bulkhead line formed the bottom. Into this trench 522,000 cu yd of sand, shells and coral were pumped to form a "sand dam." The high shear strength of the dam produced the required stability at the edge of the project.

Scaffolding Methods . . . by Patent Scaffolding Co.

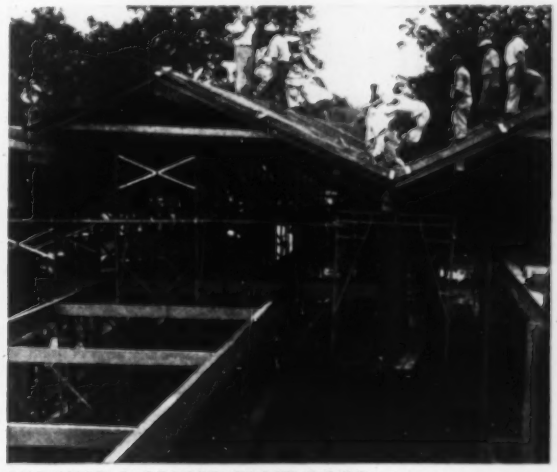


STEEPLE WORK PLATFORMS— Workmen for J. P. Roberts & Sons, contractor, guide into place a new steeple on this church. Wide, stable platforms made of "TubeLox"® Steel Scaffolding are built up rapidly.



PERFECT ACCESS FOR PLASTERERS— To give plasterers the right working heights at the underside of the curved, cantilevered roof of the Penn Fruit Building, Bergen Mall, Paramus, New Jersey, the contractor, Acme Plastering Company, uses "Trouble Saver"® Sectional Steel Scaffolding. First, frames are erected in towers. Then, they are joined by trusses which lock the units together and also make wide platform areas.

HEAVY PIER SUPPORT— On the North-South Ohio Turnpike, joint venturers, Kiewit-Condon-Cunningham, provide support for the formwork for these bridge piers by using "Trouble Saver" Shoring made from 2'-wide ladder frames erected to 26'-high towers spaced 5' apart. Built-in ladders provide easy access for forming work. 20" adjustable legs permit exact height adjustment.



SHORING A FOLDED PLATE ROOF— To make sure that the angle joints of this folded plate roof system do not move when the concrete, 4" to 6" thick, is poured, the contractor, Brick and Concrete Construction Co., uses "Trouble Saver" Sectional Steel Shoring placed to support the impact load on each adjoining folded plate section. New Charter Road School, Acton, Mass.

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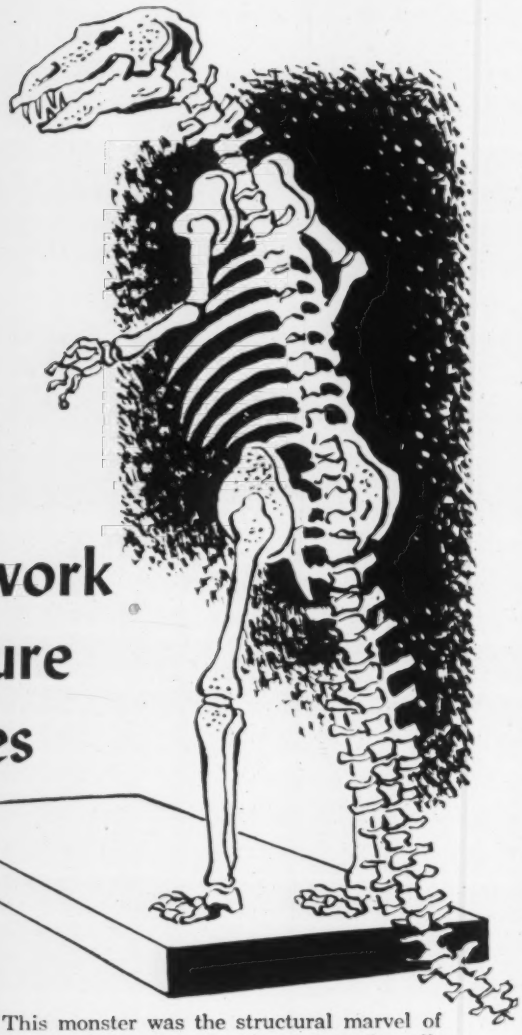
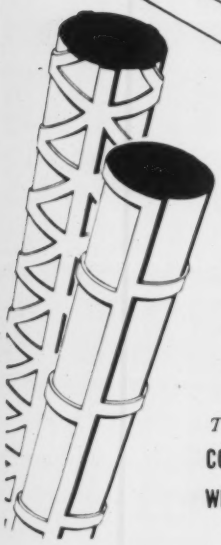


Framework to endure the ages



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. . . Central market

• **Field observations**—Careful records of the amount and rate of settlements have been kept. The rate at which lifts were placed and the period elapsing between lifts has been somewhat longer than those anticipated in the design. However, the field observations have shown rates and amounts of settlements very close to those computed from the results of laboratory tests performed during the design of the project.

As a safeguard against too rapid loading, and to permit checking upon the degree of consolidation that has occurred, porous-point piezometers were installed in the underlying silt strata.

Since this site is a case of single face drainage (that is, drainage can only take place upwards and not also into the stratum below) consolidation will occur last in the lower part of the compressible stratum. For this reason most of the piezometers were located about 1 ft above the underlying clay stratum, although in several locations the piezometer points were placed at three different levels within the silt stratum to check upon the vertical distribution of the rate of consolidation.

In one case, a piezometer was placed in the center of a sand drain. This confirmed that the drain was functioning as intended and that the water in the drain was not under excess hydrostatic head.

• **Only half done**—The first two phases of the Central Market Development are now complete. Cost of the river diversion work was $912,000; fill and stabilization cost $4.9 million. Work will start shortly on the construction of a 1,200-ft-long, two-berth general cargo wharf in front of the west half of the project. As demand for docking space increases an additional two berths will be added, with others to follow in the future.

By early next year work will start on the removal of the overloads and the construction of buildings and utilities, and by 1961 Puerto Rico should be benefiting from the project.

Planning, design and construction have been the responsibility of the Puerto Rico Ports Authority. The work was started under Salvador Caro, executive director, and Rafael Seijo Tizol, chief engineer. It is now continuing under Eduardo Gracia, executive director, and Alfonso Danway, chief engineer.

Tippetts-Abbett-McCarthy-Stratton has acted as consultants to the Ports Authority and designed the river diversion, fill and stabilization program and the two-berth cargo wharf. TAMS is also supervising the construction. The work is now under the supervision of Ernest E. Dean as resident engineer.

HIGH BANKS,

Project:
Storm Drainage,
St. Petersburg, Florida

Contractor:
W. L. Cobb Const. Co.,
St. Petersburg, Florida

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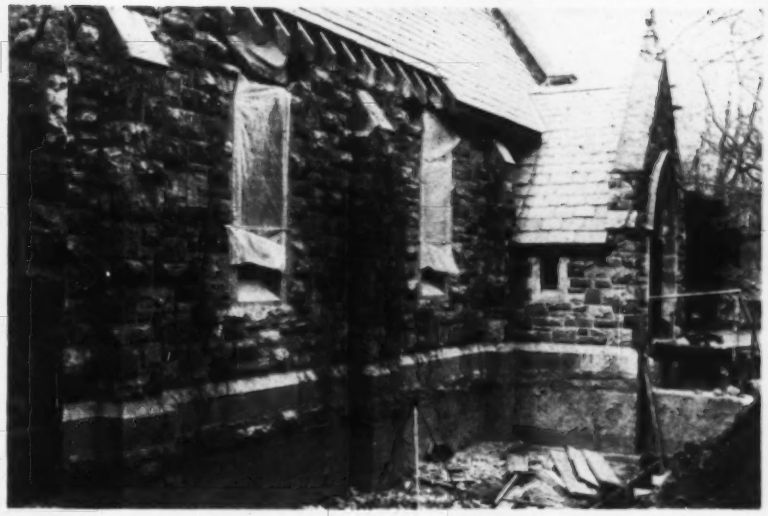
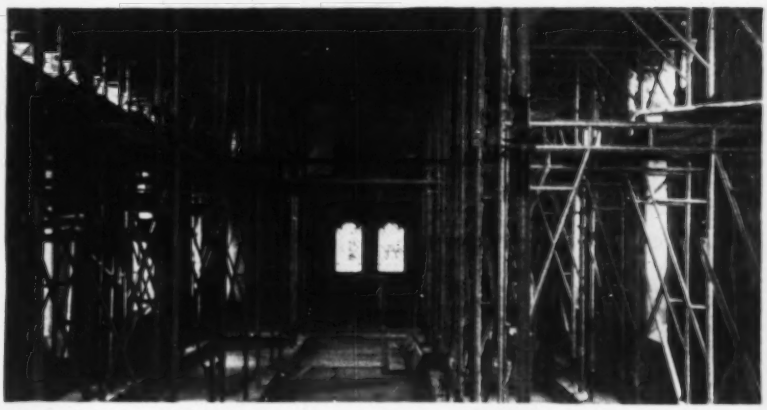


OUTSIDE, wall line was moved out 10 ft on both sides.



INSIDE, cable ties above scaffolding kept rafters from spreading.

New Walls Expand a Church

Take one small church with solid stone bearing walls and a heavy slate roof, add a rapidly expanding congregation—and you have an alteration problem. That was the situation at the Episcopal Church of St. John in Lattingtown, N. Y.

The church's seating capacity was increased from 168 to 350 by demolishing the existing side walls and building new ones 10 ft farther out on each side.

During the alteration, the existing slate roof has to be held in position. But the roof rafters aren't "tied," they just bear on sills atop the existing walls.

Here's how the builder went about the job. New outer wall foundations went in first. Then, crews erected pipe scaffolding inside the church to support the existing roof. Joists across the scaffold tops reached through pockets cut in the old wall tops to take the load of the heavy slate roof from its sills.

The crew tied the rafters with six ⅞-in. steel cables attached to the sill on one side of the church and stretched across to the opposite plate. This prevented any tendency of the roof to "pancake."

Since the roof wouldn't be anchored to anything after the old walls came down, three more cables were fastened to the new wall footings on one side of the church, run over the roof ridge and secured to the new footings on the other side. This tied the roof down against high winds and let the project manager sleep soundly on stormy nights.

When the job is finished, the old slate roof will rest on masonry arches along the old wall lines. Hip roofs will span from here to the new walls further

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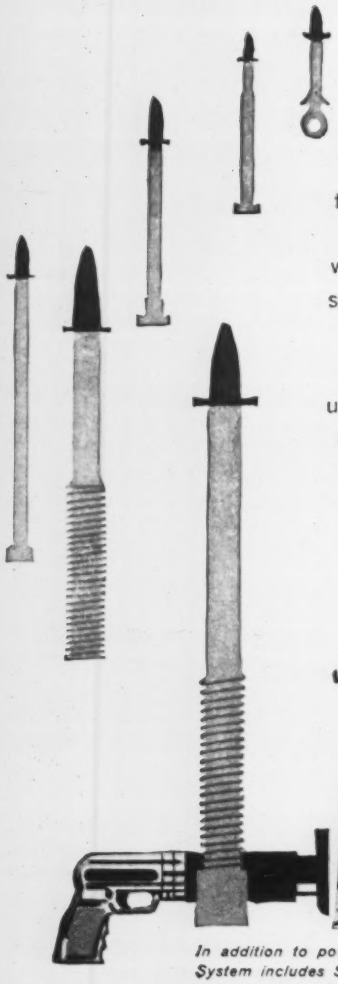

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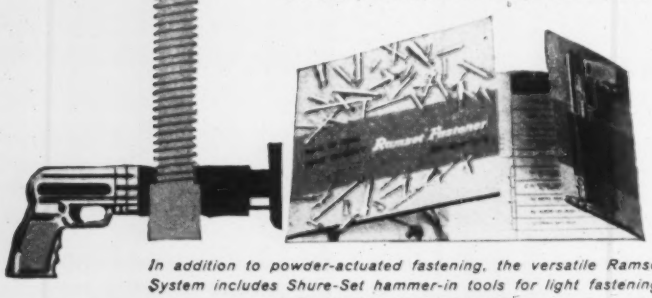

In addition to powder-actuated fastening, the versatile Ramset System includes Shure-Set hammer-in tools for light fastening, and Ringblaster heavy-duty kiln gun.

Ramset Fastening System

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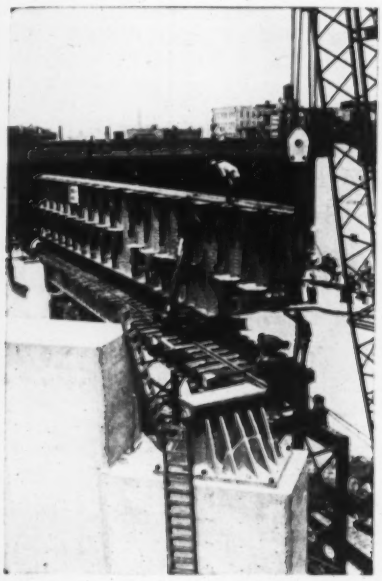
out. A parapet will help conceal the change in roof line. In all, the church project will cost almost $600,000, including church school expansion, rectory alterations and new utilities.

Architects for the project are Eric Gugler and Richard A. Kimball. Mathew Hiller is the structural engineer. Hugh McLaren, Jr., is project manager for Vermilya-Brown, Co., Inc., the general contractor. Chesebro-Whitman Co. is the shoring contractor. All are New York City firms.



Heaviest Steel Girder Supports Railroad Tracks

What is believed to be the heaviest steel girder ever shipped in one piece by the American Bridge Division of U.S. Steel Corp. has been erected in Chicago.

It is a 187-ton, 126-ft-long, 13-ft-deep plate girder, in a triple deck structure. The girder together with a similar but slightly smaller girder and 60 cross girders will carry 10 tracks of the Chicago-North Western Railroad over Chicago's Northwest Expressway.

Moving the big span into position required the construction of a special short section of railroad and the use of a 125-ton crane (photo). The outsize girder was fabricated at American Bridge's Ambridge, Pa., plant and shippped to Chicago on three flat cars.

Two 60-ton mobile cranes lifted one end of the girder at a time and placed it on two multi-tired low-boy trailers for transportation to the site. The fixed shoe and rocker supporting the heavy girder weigh 17.5 tons and 14 tons, respectively.

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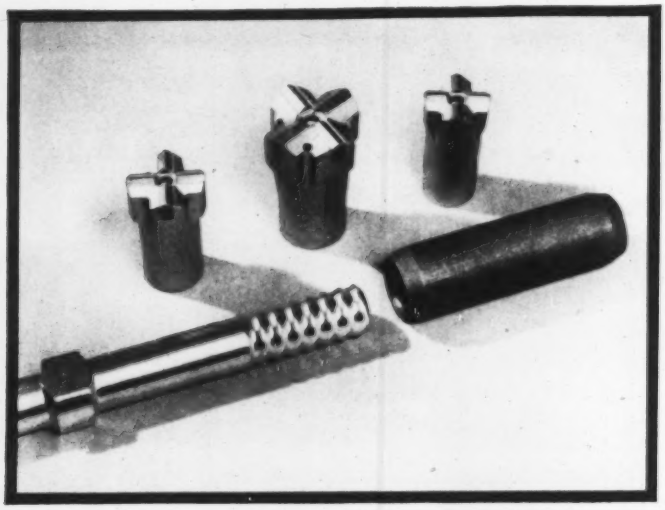

Here's proof Coromant rope-thread bits and steels SAVE TIME AND MONEY

"Up to double the footage between sharpenings!"
"Premature rod breakage is almost non-existent!"
"40% more usable life—more resharpenings!"
"Bit and rod life are well above average!"
"Uncouple by hand all the time!"
*"More rigid—drills straighter holes!"**

**Names of men quoted available on request*

The comments above are actual quotes from project managers, job superintendents, and drill superintendents who have tested new Coromant rope-thread bits and steels. They've learned, on-the-job, the benefits they—and you—can expect!

For example: The new rope-thread (only two turns per inch) holds tight in use, yet permits hand uncoupling. Reports show that the time saved results in more footage drilled per shift. Bit footage is well above average too, with less loss of carbide inserts. Prime quality ore plus nickel-chrome alloy permits cold-rolling from billets for greater strength, life and rigidity. And only with Coromant rope-thread steels can you re-thread without heat treating, too. Do it yourself, or at any nearby machine shop.

Want to know more? There's no obligation on your part, but we'll be glad to help where we can. Just call your nearest Atlas Copco Office, or write to us at Dept. ENR-7.

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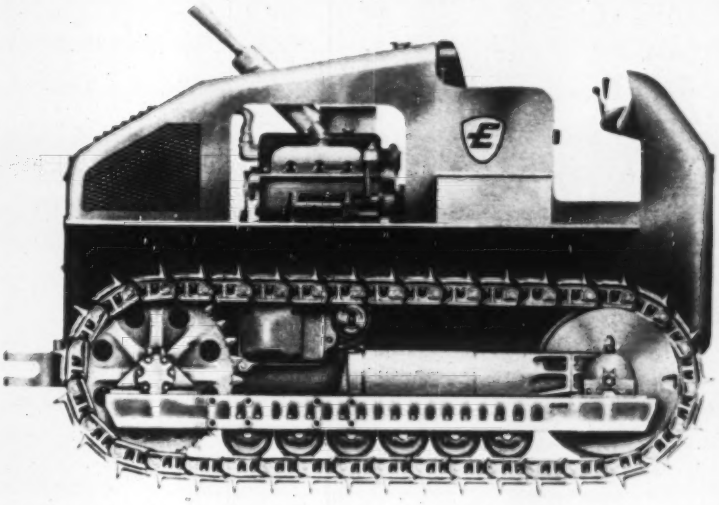


Tough Tractor Series Offered

The 103 tractors and tractor units is a completely re-engineered series that will be introduced by Eimco.

"Utilized stress flow construction" is used—the entire track frame and diagonal brace is cast of electric steel in one piece, molded to the shape and varying thicknesses required. Final drive, center housing and main frame are also produced in one heavy steel casting. These can be welded for repairs. All components are said to be readily accessible and removable.

The "Quadra-Torque" is also a feature of the 103's. This is a torque converter combined with Eimco's "Unidrive" and teamed with dual final drives. Result is a full hydraulic actuation of four forward and four reverse gears by the flip of a lever, says the manufacturer.

The new series comes in four basic units: Model 103 is tractor and dozer; 123 is a front-end loader or fork lift; 133 a specialized front-end loader for steel mills and the 143 is a log loader.

Basic bare tractor weighs 15,000 lb and develops 13,500 lb drawbar pull, powered by 100-hp diesel.

The 103 tractor is 11 ft 6 in. long, 7 ft 9 in. high and 76 in. wide. Ground clearance is 17 in. Minimum turning radius is 78 in.

Constantly running power take-off drives are set at front and rear.

Operator position is up front; engine is center-mounted behind the operator seat for greater balance and visibility. Radiator and fan are remote-mounted with separate drive for maximum cooling. Eimco Corp., P. O. Box 300, Salt Lake City 4, Utah.

Wheeled Excavator-Loader

With a weight of 18,000 lb and a carry capacity of 7,000 lb, the TL-16 TractoLoader is specially designed for excavating and loading work in sand and gravel yards and on construction jobs.

Five buckets of from 1½ to 4 cu yd are available. Buckets tip back 40 deg at ground level for rapid loading. A tip-back of 45 deg at carry height is designed for stability while traveling says the manufacturer.

Depending upon the bucket size, dumping clearance under bucket cutting edge is from 8-ft-½-in. to 9-ft-3-in. Maximum dumping clearance under hinge pin is 11 ft 6 in. Reach from front of tires to cutting edge is from 2 ft 6 in. to 3 ft 3 in.

The wheeled machine comes with either a 190-hp gasoline engine or a 104-hp diesel.

Top speed in either forward or reverse is 27 mph. Allis-Chalmers Mfg. Co., Construction Machinery Div., Milwaukee, Wis.

Two Mobile Crane Models Offer Revolving Booms

The Silent Hoist 360 deg swing-boom Krane Kar is a gasoline-operated, rubber-tired crane with a continuous revolving crane that picks up its rated capacity and travels with the load.

The mobile crane comes in 6-ton and 10-ton capacities at 6½-ft boom radius. The boom is located forward on the chassis so that its entire length is available for unobstructed working reach. The unit has equal speeds forward and reverse to 21 mph. Silent Hoist & Crane Co., 841 63rd St., Brooklyn 20, N. Y.

Cyclone Dust Collectors Come in Three Sizes

Three cyclone-type dust collectors come either as stationary units or portable rigs with a fifth-wheel towing hitch.

The models range in capacity from 12,000 to 40,000 cu ft of air per min. The Model CA-50 has a single bank of three cyclones; the Model CA-60 has two banks for a total of six cyclones; and the Model CA-70, three banks for a total of nine.

Cones are fitted with replaceable liner plates. Steel up to ⅜-in. thick is used in the ducting at points of greatest abrasion.

Chassis supports the cyclone units, power unit and either high pressure or low pressure fan. It includes all ducting except for the section that connects the collector with the dryer exhaust. Barber-Greene, 400 N. Highland Ave., Aurora, Ill.

Air-Operated Impact Tool For Heavy Wheel Work

The air-operated 434 Impactool has a 1-in. drive; main application is for heavy truck wheel work and spring U-bolt jobs. Fast rundown and more power are cited for it.

At 120 psi air pressure, the tool runs with a free speed of 3,200 rpm and delivers an average of 1,250 blows per min.

Weight, less socket, is 23¾ lb; length to shoulder of square driver is 15¾ in.; size to center distance, 2¾ in.

The standard model comes with a 6-in. extended socket driver; conventional short driver is optional.

Capacity of the tool is 1¼-in. bolt size. Hose connection pipe tap is ¾ in. and recommended hose size is ½ in. Ingersoll-Rand, 11 Broadway, New York 4, N. Y.

(New Products continued p. 60)

Tractor Has Torque Converter

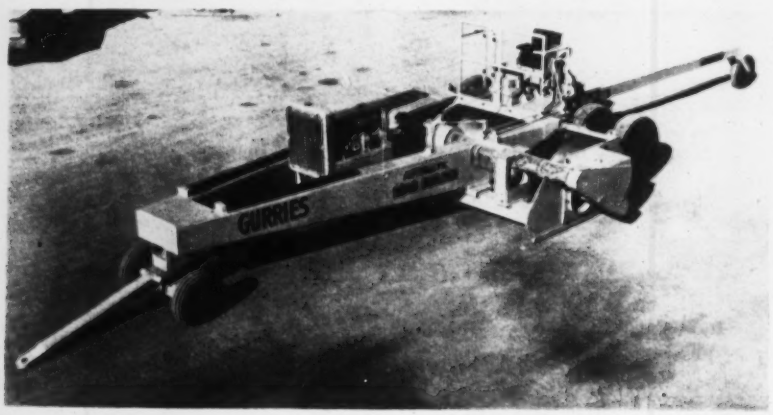
Newest addition to Oliver Corp.'s crawler tractor line is the OC-9. It is equipped with a torque converter that balances loads, reduces impact shock, permits forward speeds up to 6 mph, and reverse speeds up to 8 mph.

The machine also features "Trans-O-matic" steering. This allows counter-rotation of the tracks and results in what the manufacturer says is the shortest turning radius of any crawler its size.

The OC-9 has two complete and independent sets of steering controls—hydraulically operated hand levers, and power foot pedals. The foot pedals free the operator's hands for attachment controls.

The undercarriage measures 54 in. c-c of track. The length of track on the ground is just under 6 ft. Standard track shoes width is 12 in. but special shoes are available in 14, 16, 18, and 20 in. widths.

The OC-9 is rated at 57 hp (flywheel), and has a drawbar pull ranging from 2,840 lb in fourth speed to 16,900 lb in first. Its operating weight is 9,675 lb. THE OLIVER CORP., 19300 EUCLID AVENUE, CLEVELAND 17, OHIO.



GARB Spreads, Grades, Finishes

The GARB is said to replace the blade machines needed for spreading, rough grading and finish grading.

Grade is maintained from a patented automatic 44-ft wheelbase. Cross-slope is held by a patented hydraulic automatic pendulum control. Blade heights for both grade and cross-slope are set on dials by the operator.

The machine is said to be accurate to 1/25 in. in 15 ft.

The roadbuilder has a 13-ft blade, 10 cu yd bowl capacity and weighs 28,000 lb. Its 20-in.-dia conveyor screw is set laterally in the bowl for balancing the load in spreading operations or for side casting into a windrow, the manufacturer states.

The GARB is noted as having a constant cut and windrowing capacity of 12 ft cut, 13 ft wide, at 2½ mph. GURRIES MFG. CO., 1720 S. FIRST ST., SAN JOSE 12, CALIF.

Briefs . . .

• **Automatic transmission**—The Allison fully automatic truck transmission, named Reomatic, is now available in Reo trucks and tractors. It incorporates a torque converter, constant mesh planetary gearing, hydraulic control system, hydraulic retarder on the drive line, and converter-driven power take-off positions. REO DIV., WHITE MOTOR CO., LANSING, MICH.

• **Trailer hitch**—A trailer hitch uses a vacuum system to hold the pintle eye firmly in the coupling to eliminate rattling and shock. Unit comes ready to install. WESTERN UNIT CORP., 17747 E. RAILROAD ST., CITY OF INDUSTRY, CALIF.

• **Concrete patching**—PR-940 is an aggregate-filled, two-part, modified epoxy compound that is troweled into spalled areas of concrete to form a tough lasting patch. It is also recommended as a surfacing. PRODUCTS RESEARCH CO., 3126 LOS FELIZ BLVD., LOS ANGELES, 39, CALIF.

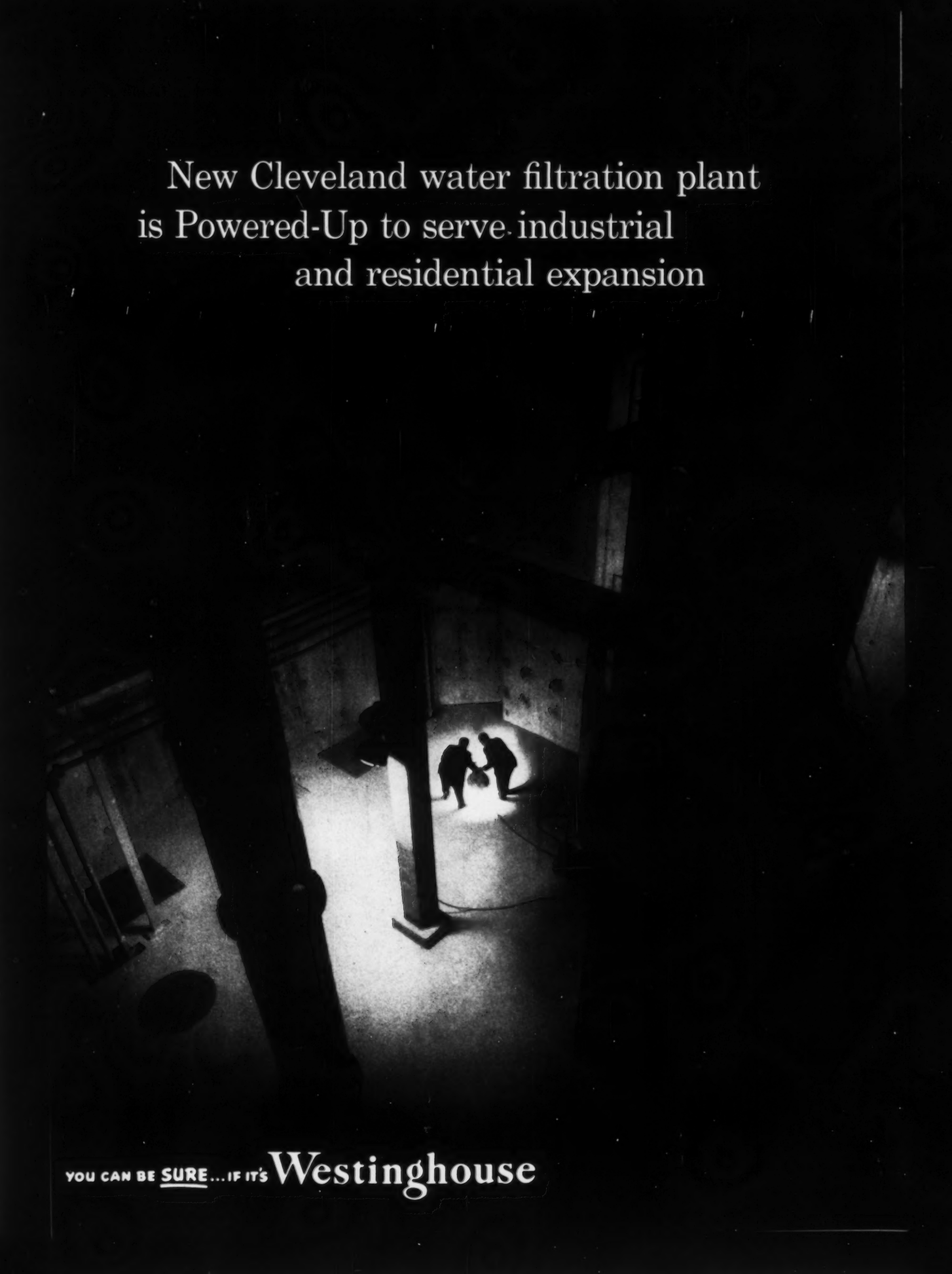
• **Cutting edges**—ForgeTemp double-bevel dozer and scraper cutting edges allow the same smooth, unworn surface to mount against the blade base in both original and reversed positions. BUCYRUS BLADES, INC., BUCYRUS, OHIO.

• **Excavator**—A ¾-yd excavator that is convertible to all attachments is on the market. It has a 16-ton capacity when fully equipped for crane operation. A diesel engine with or without torque converter or an eight cylinder gasoline engine with torque converter are offered. UNITED CRANE & SHOVEL CO., 6411 W. BURNHAM ST., MILWAUKEE 19, WIS.

• **Diesel electric plant**—Model 6DRN, a 6,000-watt, air-cooled diesel electric generating plant is now being produced by Onan for general power applications. It may be adapted for below-deck marine use. The unit is powered by a 13.5 hp. 4-cycle full-diesel engine. D. W. ONAN & SONS INC., 2515 UNIVERSITY AVE. S.E., MINNEAPOLIS 14, MINN.

(New Products continued p. 65)

New Cleveland water filtration plant is Powered-Up to serve industrial and residential expansion



YOU CAN BE SURE... IF IT'S Westinghouse

Cover photo:
View of raw water pump suction wells illuminated by Westinghouse VEK-16 floodlighting.

Project group discussing layout of Crown Filtration Plant includes J. E. Hrovat, Vice President of Engineering, Doan Electric Co., Electrical Contractors; E. E. Croushore, Westinghouse Construction Sales Engineer; L. O. Meyer, Branch Sales Manager, WESCO, Cleveland; Dan Kasych, Chief Engineman, Pump Building; G. L. Baughman, Chief Electrical Engineer, Havens and Emerson, Consulting Engineers; S. C. Simmermacher, Chief Mechanical Engineer, City of Cleveland; M. B. Trimble, Westinghouse Construction Sales Engineer; E. S. Goulder, President, Doan Electric Co.; and H. M. Stafford, Salesman, WESCO, Cleveland.

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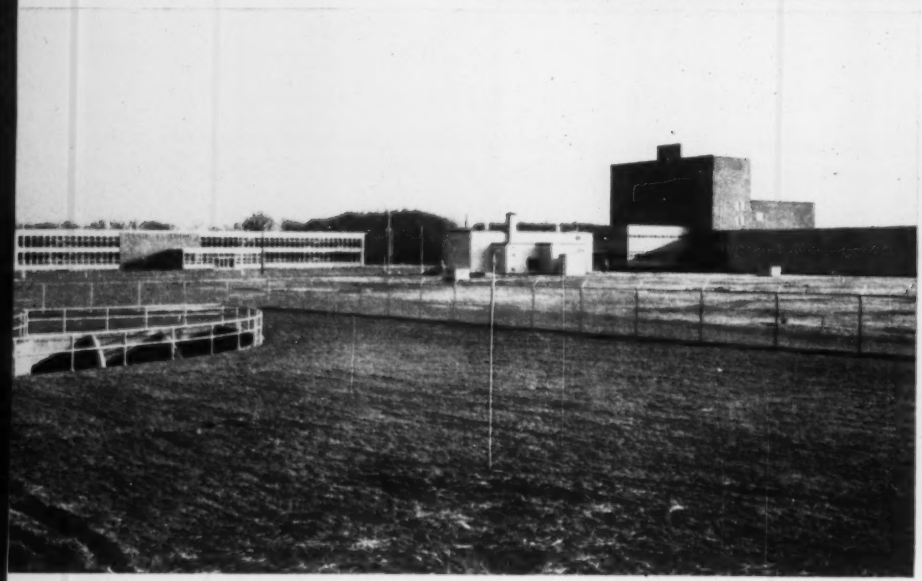
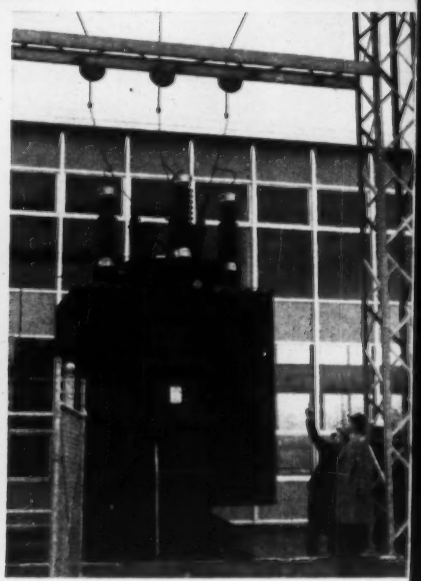


Over-all view of Crown Filtration Plant, Cleveland, Ohio. Pump building is at left and the filter building at right. Westinghouse OV-20 street lighting was provided for plant entrances and roadways.



Dan Kasych and E. E. Croushore examine one of the two Westinghouse 5000-kva power transformers which step incoming 34.5-kv service down to 4160 v for main pump drives.

Westinghouse system provides for 100% electrical load increase in new water pumping station

The new Crown Filtration Plant was designed to meet the growing need for water supply in the westerly suburbs of Cleveland, Ohio, and, as an important part of that planned expansion, the Westinghouse electrical system presently installed provides for 100% load increase without adding to the system.

The pumping station-filtration plant is located on a 55-acre site and is the newest addition to the city's expanding water supply system. Construction was started in 1953 and completed in 1958, and represents nearly a $20,000,000 investment. Present plant capacity is 50 mgd; but, because of anticipated future requirements, the plant has space and provision for additional equipment to provide capacity of 100 mgd.

Raw water is obtained through a crib 2½ miles offshore in Lake Erie. The water from the crib is carried through a connecting tunnel to a raw water well, where its handling is taken over by submerged raw water pumps. Treatment and flow of the water from this point through the filtration plant are automatic and exactly controlled, leading finally to a 15-million-gallon filtered water reservoir located in the southwest corner of the plant area. Six service pumps deliver the water from the reservoir to both the low service zone and the first high service zone supplied by the Crown plant.

The major electrical elements supplied by Westinghouse to Power-Up this filtration operation include:

Two 5000-kva power transformers—to step utility service from 34.5 down to 4.16 kv.

Main metal-clad switchgear—to control and distribute power to motor starters (for L.S.) and provide for starting of H.S. motors (1750 hp).

Dry-type power center—to provide 480-v service to plant auxiliaries.

Westinghouse lighting throughout the plant area, including fluorescent, incandescent, street lighting and floodlighting.

In addition, Westinghouse supplied the many panelboards required in the plant's operation.

The planned Powering-Up of the Crown Filtration Plant means it can meet all foreseeable future requirements with a minimum of modification. Additional water handling and treating facilities can be installed in areas already provided for them. And all such additional equipment can be operated without adding to the existing electrical distribution system.

Cleveland now has surplus water capacity in its plants, and is in an enviable position with an almost unlimited supply of good Lake Erie water. It is ready and willing to construct additional facilities to process and deliver this water whenever the need for a greater supply for new industry is indicated.

(contd.)

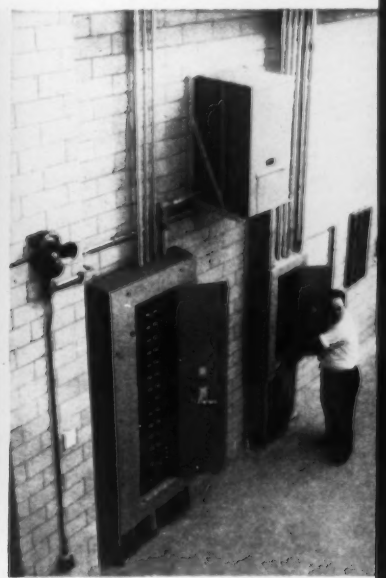
YOU CAN BE SURE...IF IT'S **Westinghouse**

J-94123-3

View in main switchgear room with G. L. Baughman, M. B. Trimble and S. C. Simmermacher examining Westinghouse metal-clad switchgear. Lineup at right contains main incoming line breakers, bus tie breaker, reactor starters for high service pump motors, and feeder breakers for power center and low service pump motor starters. Five-kv bus duct overhead provides connections from metal-clad switchgear to Ampgard* high-voltage fused starters at left.

*Trade-Mark

Dan Kasych inspects switchgear room. Westinghouse 225-kva power center utilizes dry-type transformers and DB low-voltage air circuit breakers to supply power panels throughout pump building. Room lighting is Westinghouse 2 SPC-75 slimline fluorescent luminaires.



Westinghouse CDP power distribution panelboard and wall-mounted 37.5-kva dry-type transformer feeding NLAB lighting panelboard. J-94123-3

(contd.)

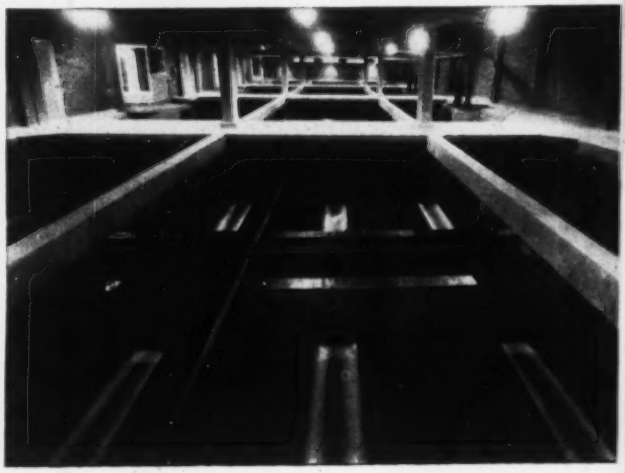
Electrical system provides for 100% load increase

Powering-Up electrically for future growth can mean important benefits and savings for you. For further information, call the Westinghouse electrical construction engineer nearest you, or write: Westinghouse Electric Corporation, Box 868, Pittsburgh 30, Pennsylvania. J-94123-4

OWNER: City of Cleveland, Ohio
CONSULTING ENGINEER: Havens and Emerson, Cleveland, Ohio
CONSULTING ARCHITECT: Small-Smith-Reeb and Draz, Cleveland, Ohio
GENERAL CONTRACTOR: The Hunkin-Conkey Construction Co., Cleveland, Ohio
ELECTRICAL CONTRACTOR: Doan Electric Co., Cleveland, Ohio
WESTINGHOUSE DISTRIBUTOR: Westinghouse Electric Supply Co., Cleveland, Ohio

Section of main pump floor showing the three 25-mgd first high service pumps and three 8-mgd low service pumps which are presently installed. Metal-clad switchgear cubicles and Ampgard high-voltage starters for these and two additional future pumps of each rating are installed in the main switchgear room. High bay mercury-vapor lighting is provided by Westinghouse Millite® luminaires.

View in filter building showing row of clarified water filter beds. Under average flow conditions, the 12 filters in the plant will pass a total of 50 mgd. Lighting is supplied by Westinghouse VEK-16 floodlights.



Over 250 Pages Westinghouse Data in Sweet's Construction File.

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. . . New Products

• **Outdoor fork trucks**—Clark Equipment Co. has introduced three pneumatic-tire trucks for work on piers, unpaved yards and similar areas. They have capacities of 6,000 lb, 7,000 lb and 8,000 lb. Maneuverability over uneven terrain is achieved with long wheelbases combined with comparatively short turning radii. CLARK EQUIPMENT CO., INDUSTRIAL TRUCK DIV., BATTLE CREEK, MICH.

• **Aluminum dump trailer**—A 28-ft-long dump trailer made entirely of aluminum weighs only 7,990 lb. The aluminum construction is said to offer increased payload and make painting unnecessary. TRAILCO MFG. & SALES CO., HUMMELS WHARF, PA.

• **Portable compressor**—Ingersoll-Rand has introduced a 125-cfm portable rotary compressor that weighs 2,442 lb and may be powered by diesel or gasoline engine of 1,800 rpm. It has automatic oil drainage from cylinders when it is shut down. INGERSOLL-RAND, 11 BROADWAY, NEW YORK 4, N. Y.

• **Fork lift truck**—a 2,000-lb capacity fork lift truck has been designed for use indoors and outdoors and in mud, sand and snow. It has four forward speeds to 15 mph. GETMAN BROTHERS, SOUTH HAVEN, MICH.

• **Dump trailer**—A frameless, single-axle cable dump trailer that weighs 5,300 lb is rated for a payload of 40,000 lb. Steel U-shaped ribs girdle the sides and bottom of the body shell. HOBBS TRAILERS, FORT WORTH, TEX.

• **Lift truck carriage**—A special fork carriage can be installed on the standard Y-18 tractor shovel by removing four pins and four bolts. The carriage accommodates the same type forks as used on the G-52 series of gasoline powered lift trucks. YALE & TOWNE MFG. CO., 11000 ROOSEVELT BLVD., PHILADELPHIA, PA.

• **Dump lock**—A clamp locks dump trailer bodies to prevent vibration and wear. When the lift operation is started, a control clears the clamps of the trailer body. TRAILCO MFG. & SALES CO., HUMMELS WHARF, PA

• **One-way compactor**—From 400 to 600 blows per minute are cited for the Rapak, a self-propelled, one-man earth compactor. Interchangeable shoes give the compactor a range of 6 to 18 in. in width. Extensions available for compacting at greater depths. RACINE HYDRAULICS & MACHINERY, INC., 2000 ALBERT ST., RACINE, WIS.

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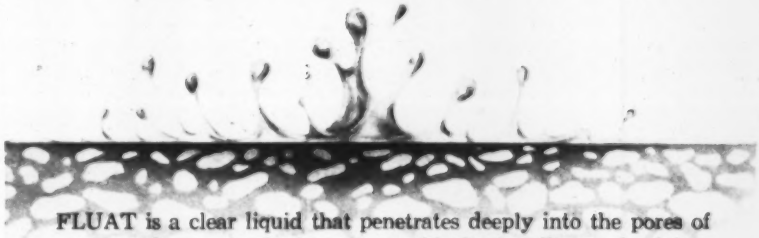
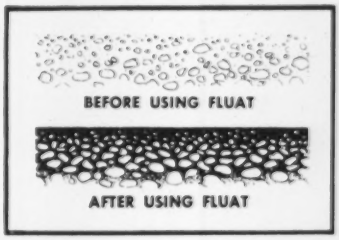
FLUAT



FLUAT is a clear liquid that penetrates deeply into the pores of new or old concrete. It then reacts with the free lime and calcium carbonate in the concrete, and turns these relatively soft compounds into extremely hard, insoluble silicates. These silicates completely fill and seal the concrete pores, creating a very dense and hard surface which actually increases the overall strength of a concrete floor.



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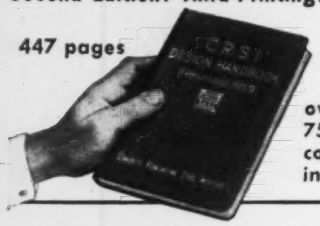

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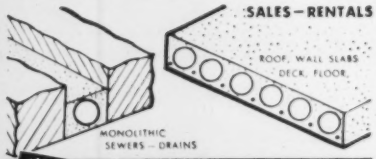

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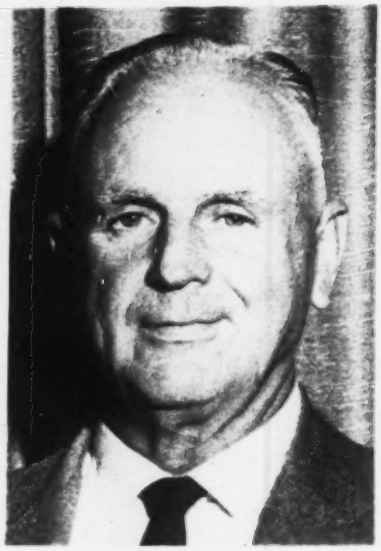
Men and Jobs



Connecticut Names Ives To Head Highway Agency

Brig. Gen. Howard S. Ives, former deputy commission of the Connecticut State Highway Department, has been appointed state highway commissioner.

General Ives began his career with the department in 1917, when he was chief of party. He has taken part in the construction of several of the state's large bridges. He was project engineer in charge of the Raymond E. Baldwin Bridge on U.S. 1, between Old Saybrook and Old Lyme.

He commanded an engineering batalion in the European Theater of Operations during World War II. Since his resignation as deputy commissioner in 1956, he has been associated with the Edward Balf Co., Hartford contractors. He succeeds Newman E. Argraves.

Ohio State Alters Program To Require Liberal Arts

Ohio State University College of Engineering has split its five-year engineering curriculum into two years of pre-professional study and three years of professional study. Requirements for graduation are based on work in the professional division.

Pre-engineering courses will include science, math, basic engineering courses and liberal arts. Students seeking admission to the professional courses must average at least "C."

The two year preparatory period is designed to aid students in determining their ability for engineering says Harold A. Bolz, Dean of the College on Engineering. The program begins this fall.

Careers

Business

Clark Rankin is elected vice president of the Bechtel Corp., San Francisco, and manages the Paris, London and the Hague offices. He has been with the company for 25 years.

Harry F. Toner, former sales manager, has been elected vice president of sales for Natco Corp., Pittsburgh, producers of structural clay products.

Virgil W. Farmer has been named chief engineer of the Greenville Steel and Foundry Co., Greenville, S. C. He had been on the engineering staff of the Carolina Steel Corp., Greensboro, N. C. which merged with Greenville Steel.

J. R. Johnston is appointed assistant treasurer and credit manager of Jones & Laughlin, Tulsa. Assuming Mr. Johnston's legal duties at Jones & Laughlin is **E. H. Moores,** formerly assistant attorney at Skelly Oil Co., Tulsa.

William Feick, Jr., formerly vice-president and treasurer of the Flintkote Co., New York City, is the company's newly elected vice-president in charge of sales. Before his association with Flintkote, he was an officer of the Crocker-Anglo National Bank, San Francisco. Succeeding Mr. Feick as treasurer is **James E. McCauley,** formerly vice president and treasurer of Orangeburg Manufacturing Co., a Flintkote division. Elected secretary is **Gene G. Curry,** former secretary of Flintkote's Blue Diamond Division. He replaces **George K. McKenzie,** who assumes increasing duties as executive vice-president.

E. Neil Anderson is vice president in charge of construction for Alpha Corp., Dallas. Since 1952 he has been with the Henry C. Beck Co., Dallas.

Walter Kohlenberger is board chairman of the Kohlenberger Engineering Corp., Fullerton, Calif., manufacturers of industrial refrigeration and air conditioning equipment. Elected president is **Charles R. Kohlenberger. Ben Peak,** plant superintendent, is named to the board of directors.

J. P. Titus has been appointed district engineer for the Northern Pacific Railroad, Seattle. With the railway since 1940, he has been assistant engineer of construction since 1956.

Russell E. Horn, retired colonel in the U.S. Army Corps of Engineers, is president of Buchart Engineering Corp., consulting engineers, York, Pa. He had been Buchart's executive vice president. Past president Clair S. Buchart was elected chairman of the board.

(*Men and Jobs continued p. 68*)

Clay Pipe for Long-Range Economy

MADISONVILLE, KENTUCKY, is so efficiently managed that for the third successive year no property taxes were levied. With this record for efficiency, it is only natural that corrosion-proof Clay Pipe was chosen for the city's new sewerage expansion program. More than twenty-two and a half miles of Vitrified Clay Pipe are going into the project.

In the opinion of J. Sanders Parker, Consulting Engineer, Clay Pipe is "the best that could be obtained for this service." Clay Pipe never wears out . . . does not rust, rot, or disintegrate . . . is the only pipe backed by a long-term written guarantee. And the new stronger, longer lengths speed installation . . . cut labor costs.

When investigating materials for sewer expansion, remember . . . Only Clay Pipe has *all* the features you can trust.

Public Officials: David Parish, Mayor; A. O. Johnston, Councilman, Chairman of Water and Sewers.

Consulting Engineers: J. Sanders Parker; F. E. Stepp, Resident Engineer.

Contractors: C. F. W. Construction Co., Inc.; Sterrett Construction Co.

C-65-I

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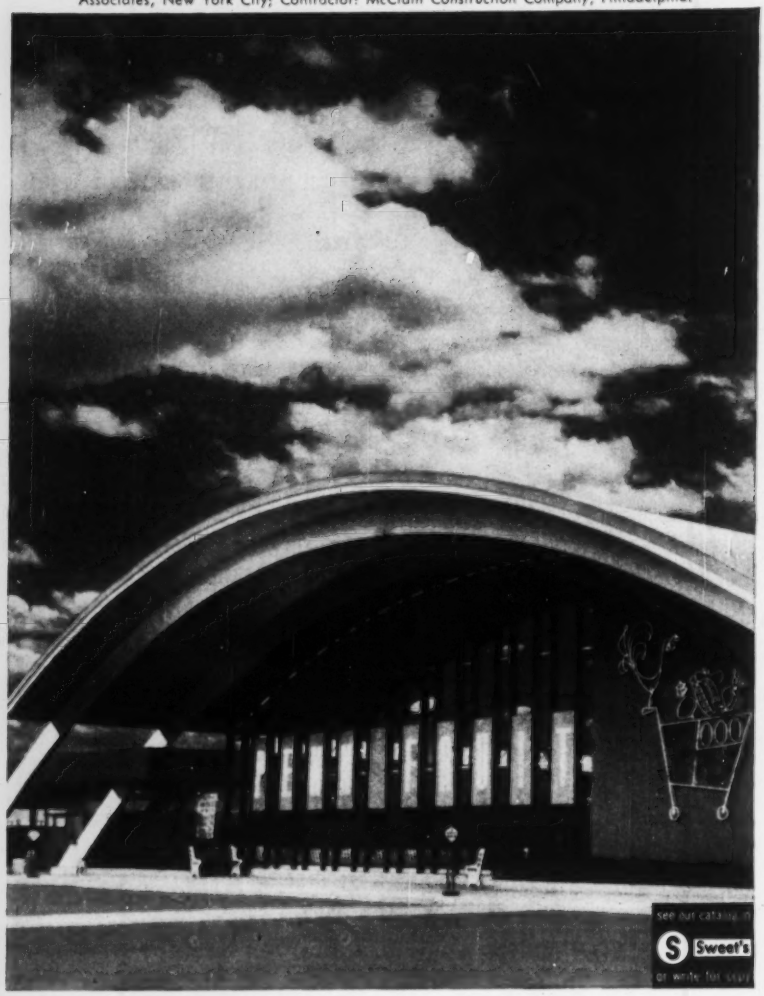
Blackhorse shopping center of Penn Fruit Company, Audubon, New Jersey. Architects: Victor Gruen & Associates, New York City; Contractor: McClain Construction Company, Philadelphia.



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. . . Men and Jobs

Public Works

Leslie H. McManus is Alberta's new deputy minister of highways. Replacing him as chief engineer for the Department of Highways is **Vic E. McCune.**

Arthur P. Logan takes over as Pennsylvania's deputy secretary of the Department of Highways. He will supervise the department's personnel, finances and management methods. Salary: $15,378. He had been secretary and business manager of the Erie City School District. Mr. Logan will also continue as instructor of transportation at Gannon College, Erie, Pa.

Richard D. Dundas assumes duties as district engineer for Butte, Mont. With the state for 22 years, he had been division engineer for the Montana Highway Department. He replaces **Lewis Chittim,** who is right-of-way engineer in Helena.

L. M. Cooley, former chairman of the Colorado State Planning Commission, is Denver's new manager of public works, a $12,000 a year position. He succeeds **Richard Y. Batterton,** who has been elected mayor.

Homer Lee Chryssikos, with the Virginia Department of Highways for eight years, takes over as resident engineer.

T. J. McKim, state construction engineer for the North Carolina Highway Department, has been appointed third division highway engineer at Wilmington, N. C.

Nathaniel S. Day, resident engineer at Jacksonville, N. C., has been named district engineer at Clinton, N. C. He has been with the department since 1940.

Retirements

Alex Frame, deputy minister of Alberta highways, retired. He joined the department in 1922 and held his last position for eight years.

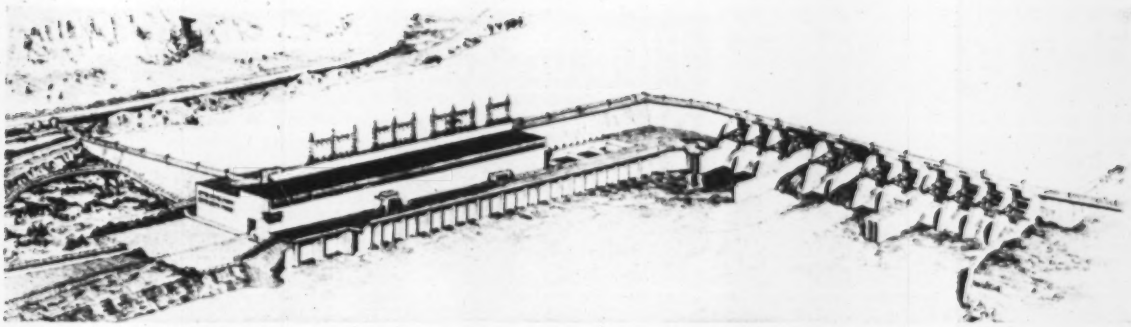
A. H. Merrill retired as assistant maintenance engineer for the Minnesota Highway Department after 45 years with the state.

Claude W. O'Donnell, who initiated Tennessee's highway planning survey project nearly 23 years ago, retired. He had been with the U. S. Bureau of Public Roads for 25 years.

George J. Richards resigned as administrative deputy secretary of the Pennsylvania Department of Highways.

W. H. Rogers Jr., chief engineer for the North Carolina Highway Department resigned. He had been with the department for 27 years and served in his last post for ten years.

Louis W. Payne, assistant chief engineer for the North Carolina Highway Department resigned after 36 years of service.

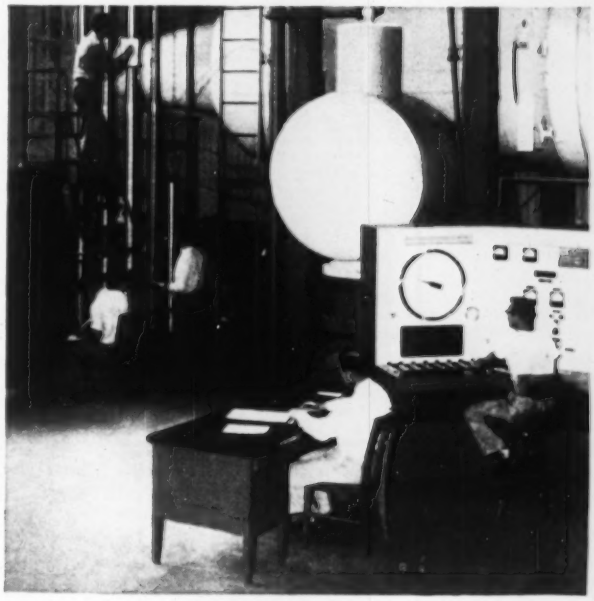


Rocky Reach Hydroelectric Project, under construction on the Columbia River by Public Utility District No. 1 of Chelan County, Washington. Stone & Webster Engineering Corp. are Engineers and Supervisors of Construction. The installation is downstream from Chief Joseph Power Project, where six 100,000 HP vertical Allis-Chalmers Francis units are installed.

Homologous models for Rocky Reach were tested in the York Works Hydraulic Laboratory under controlled conditions that duplicate those in protoype field installations. ▼

ROCKY REACH TO USE ALLIS-CHALMERS KAPLAN TURBINES

High-capacity units to be equipped with special new Runaway Speed Limiter



Rocky Reach Hydroelectric Project, scheduled to generate electricity in 1961, will be powered by seven Allis-Chalmers Kaplan turbines. These 280-inch units are each rated at 140,000 HP under a 92-foot head, with maximum expected capacity exceeding 160,000 HP under a 98-foot head. This new high-capacity design, with greatly improved cavitation characteristics, was developed by Allis-Chalmers engineers at the York Works and tested in the high head test stand there.

Each unit will be equipped with a special new turbine Runaway Speed Limiter, which will make it impossible for a speed of more than 85% over normal to be attained. The possibility of excessive overspeeds of 150-200%, previously an accepted characteristic of Kaplan-type turbines, is positively eliminated. A substantial saving in the cost of generators resulted from this new method of speed limitation.

Its feasibility was proved by laboratory and field research. Field acceptance tests on installations equipped with the Runaway Speed Limiter have confirmed its complete dependability and effectiveness.

You can look to A-C for the latest design, engineering and manufacturing advances in hydraulic turbines and accessories. For information, write to Allis-Chalmers, Hydraulic Division, York, Penna.

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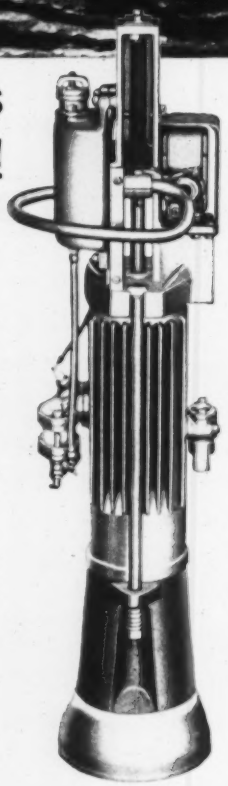

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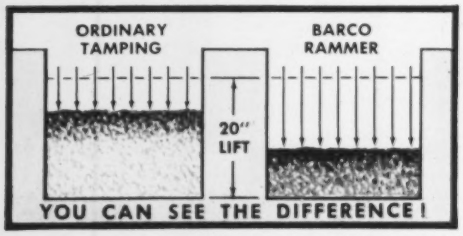

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Obituaries

Fernand Weiss, 67, retired director of the Alabama Power Co., Birmingham, and vice president in charge of engineering and construction. He headed the Coosa and Warrior River hydroelectric projects near Leesburg. Weiss Dam, named in his honor, is part of this project.

Lawrence M. Saunders, 66, senior civil engineer in the New York State Public Works Department. He had been with the state for 32 years.

Maj. Elijah Terry Ketchum, 67, constructor of the floating railroad across Sarasota, Fla., long considered an impossible feat. In the early 20's he supervised the construction of Pier No. 9 at Newport News, Va., the largest in the country at that time. He worked with both the U. S. Map Service and the Department of Defense. Full military honors were accorded Major Ketchum with burial in Arlington Cemetery.

Henry H. Powell, 81, retired U. S. Army engineer at Washington.

Bishop Moorhead, 66, chief civilian engineer at Mesawa Air Base, Japan. Before going to Japan in 1953, he served the Portland District Corps of Engineers for 10 years.

Edward M. Tate, 64, general superintendent for Stein Construction Co., Chattanooga, and director of construction for Chattanooga's new outfall sewer and tunnel through Stringer's Ridge. He also worked with the TVA for 18 years supervising extensive highway and rail construction.

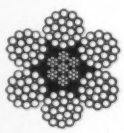
Henry B. Cleveland, 81, engineer for the New York State department of health for 20 years. Before joining the state, he had a consulting engineer office in New York City for 22 years.

Charles C. Hezmalhalch, 68, Colorado deputy water engineer since 1929. A graduate of the Colorado School of Mines, he worked for The Public Service Co. of Colorado before going into state service.

Sigurd Solvason, construction specialist on facilities for the pulp and paper industry. After 15 years with the Minnesota and Ontario Paper Co., he joined Merritt-Chapman & Scott where he was project manager on paper mills in Florida and Israel. Later he was associated with John A. Hardy, Mexico paper mill consultant.

YOU CAN'T BARGAIN WITH SAFETY

WICKWIRE ROPES FOR CONTRACTING EQUIPMENT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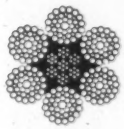
Filler Wire, IWRC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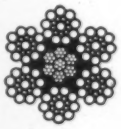
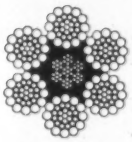

6 x 19
Seale, IWRC


6 x 31
Seale, IWRC

For detailed recommendations, write the nearest CF&I sales office and ask for WR 736.

For safety and performance . . . order CF&I-WICKWIRE *"job-designed" wire ropes*

The Image of CF&I—a giant steelman—stands for the rigid quality-controls and testing procedures that are carried out in the production of Wickwire Rope. This Image also reflects CF&I's ability to design a specific product to meet a particular need.

These are the very reasons why CF&I-Wickwire Ropes are both *safe*—as only a *quality* wire rope can be—and *suitable*—because they are available in a *complete range* of wire grades, types, sizes and constructions, designed to meet each industry's requirements.

Avoid the losses—due to injuries and wrecked equipment—that can occur when a "bargain" rope fails. Buy a quality wire rope that's designed for the job it must do—a CF&I-Wickwire Rope.

FREE! Send for new 32-page catalog, "CF&I Steel Products for the Construction Industry".

WICKWIRE ROPE

THE COLORADO FUEL AND IRON CORPORATION

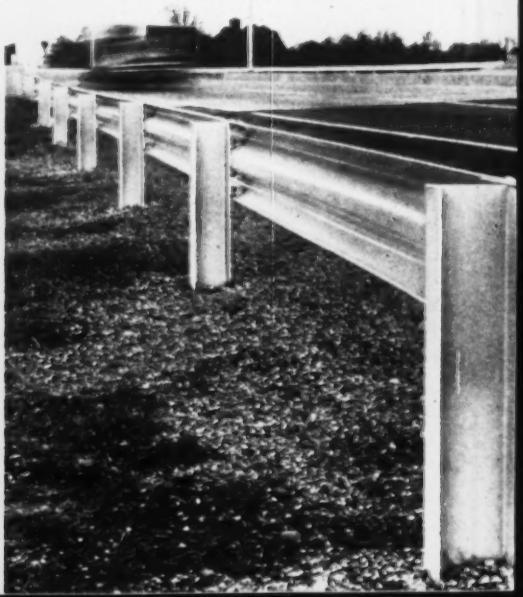
CF&I STEEL

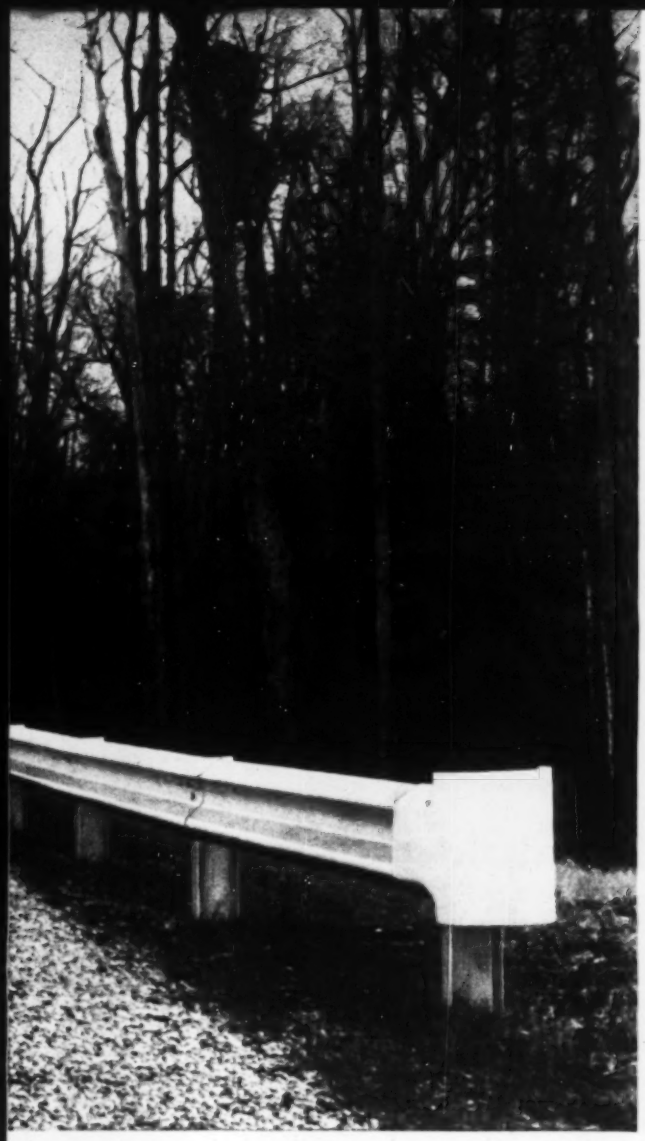
In the West: **THE COLORADO FUEL AND IRON CORPORATION**—Albuquerque • Amarillo • Billings • Boise • Butte • Denver El Paso • Farmington (N. M.) • Ft. Worth • Houston • Kansas City • Lincoln • Los Angeles • Oakland • Odessa (Tex.) Oklahoma City • Phoenix • Portland • Pueblo • Salt Lake City • San Francisco • San Leandro • Seattle • Spokane • Tulsa • Wichita

In the East: **WICKWIRE SPENCER STEEL DIVISION**—Boston • Buffalo • Chattanooga • Chicago • Detroit • Emlenton (Pa.) New Orleans • New York • Philadelphia

6794-E

Quickly driven steel posts and easily attached steel beams produce a strong, highly visible and economical guard rail.





Traffic protection at its best

USS AmBridge Highway Beam Guard Rail and Posts

Rugged, flexible, highly visible steel beam guard rail firmly bolted to sturdy steel posts is the strongest, surest traffic safeguard available. And economical too, since the posts are readily driven and the guard rail is easily spliced and installed.

Both of these AmBridge highway products are available quickly. Besides possessing all of the features of the modern Universal Guard Rail Section, USS AmBridge Highway Beam Guard Rail offers these extra advantages:

1. *All* mill scale is removed before the guard rail section is formed, assuring uniform, tenacious paint adherence.

2. Prior to painting, all sections are degreased, given two hot water rinses, and oven dried. Then a coat of rust-inhibiting shop primer is applied.

3. USS AmBridge Beam Guard Rail can be furnished in 25' lengths, cutting splicing requirements in half and appreciably reducing bolt costs.

For more information, get in touch with any of the offices listed below. *USS is a registered trademark*

New Movie Available—

"Challenge at Carquinez—Project 56-14," an interesting sound and color 16mm film. Showing time, 25 minutes. For free booking, write to Pittsburgh, Pa.

American Bridge Division of United States Steel

General Offices: 525 William Penn Place, Pittsburgh, Pa.
Contracting Offices in: Ambridge, Atlanta, Baltimore, Birmingham, Boston, Chicago, Cincinnati, Cleveland, Dallas, Denver, Detroit, Elmira, Gary, Harrisburg, Pa., Houston, Los Angeles, Memphis, Minneapolis, New York, Orange, Texas, Philadelphia, Pittsburgh, Portland, Ore., Roanoke, St. Louis, San Francisco, Trenton, United States Steel Export Company, New York

CUTTING CAPACITIES UP TO 1 INCH 1-1/16 INCH, AND 1-1/2 INCH

THE Morse-Starrett WIRE ROPE CUTTER

FAST
Especially designed cutting blade and dies of the finest steel assure fast cutting action.

EASY
Anyone can operate it. The hammer principle eliminates any special skill requirements.

SAFE
The enclosed cutting blade locked in the body of the cutter assures perfect safety.

PORTABLE
Models for tool kit or stationary operation. Made in three sizes.

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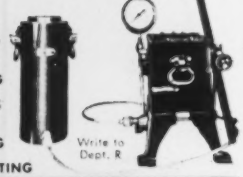

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Sewage Treatment Plant, Georgia

Vitrified clay sewer pipe alternate for trunk lines takes contract from lower bid on concrete pipe

Bids were taken two ways for the sewer pipe for the trunk lines to this 1.5 mgd Flat Creek sewage treatment plant in Gainesville, Ga. The city paid a premium of 25¢ to 80¢ per lin ft for 24 in. vitrified clay pipe over the lower bids on concrete pipe.

Two contracts totaling $613,203 were awarded to:

Contract	Amount	% of Total	% under Engr. Est.
Sewage Treatment Plant			
Industrial Builders Co., Anderson, S. C.	$479,703	78.2	8.5%
Trunk Lines			
Noll Construction Co. Charlotte, N. C.	133,500	21.8	7.9%

A total of 15,060 lin ft of 15 and 24 in. clay sewer pipe will be laid in 6 to 16 ft cuts. An additional 190 ft of 16 in cast iron and steel pipe will be laid in 6 ft cuts.

The bidding included:

Trunk Lines

Alt. A. Concrete Sewer Pipe

1	Noll Constr. Co., Charlotte, N.C.	$130,249
2	Arthur Pew Constr. Co., Chamblee, Ga.	164,397
3	Nichols Constr. Co., Atlanta, Ga.	165,163
EE	City of Gainesville, Ga.	145,000

Alt. B. Vitrified Clay Sewer Pipe

1C	Noll Constr. Co., Charlotte, N.C.	$133,500
2	Nichols Constr. Co., Atlanta, Ga.	168,725
3	Arthur Pew Constr. Co., Chamblee, Ga.	170,106
EE	City of Gainesville, Ga.	145,000

Alt. A. Concrete Pipe Trunk Lines

CSP, 15", cut 0-6'	lf	1,520	$3.95	$4.75
6-8'	lf	620	4.25	5.15
8-10'	lf	240	4.75	5.90
10-12'	lf	1,210	5.75	7.25
12-14'	lf	590	7.00	9.00
14-16'	lf	180	8.75	13.00
24", cut 0-6'	lf	6,530	7.50	8.05
6-8'	lf	3,500	8.00	8.75
8-10'	lf	600	8.75	10.25
10-12'	lf	20	9.75	12.50
12-14'	lf	40	11.00	15.00
14-16'	lf	10	12.75	19.00
Add pipe for 15" sewer				
CMP, 15", cut 0-6'	lf	20	3.50	5.00
Stl, 16", cut 0-6'	lf	70	10.00	10.00
Add pipe for 24" sewer				
CMP, 24", cut 0-6'	lf	60	12.50	7.50
Stl, 24", cut 0-6'	lf	40	20.00	12.50
RR xing, compl exc MH	ls	job	6,000	9,100
RC diversn weir box, compl	ls	job	4,000	3,000
MH, 4'ϕ construct	vf	380	20.00	27.50
rings & covers	ea	45	35.00	50.00
Excavation, rock	cy	800	0.01	10.00
Stabilize, trench bottom	cy	110	7.25	7.50
Conc, encase, block, etc	cy	10	30.00	40.00
Pavement, remov & replace	lf	2,820	1.00	2.50

Alt. B. Vitrified Clay Pipe Trunk Lines

VCSP, 15", cut 0-6'	lf	1,520	$3.95	$5.00
6-8'	lf	620	4.25	5.55
8-10'	lf	240	4.75	6.10
10-12'	lf	1,210	5.75	7.90
12-14'	lf	590	7.00	9.30
14-16'	lf	180	8.75	10.20
24", cut 0-6'	lf	6,530	7.75	8.45
6-8'	lf	3,500	8.25	9.20
8-10'	lf	600	9.00	9.95
10-12'	lf	20	10.00	12.20
12-14'	lf	40	11.80	14.50
14-16'	lf	10	13.55	16.00
Add pipe for 15" sewer				
CIP, 16", cut 0-6'	lf	20	6.90	10.00
Stl, 16", cut 0-6'	lf	70	10.00	5.50
Add pipe for 24" sewer				
CIP, 24", cut 0-6'	lf	60	10.50	12.00
Stl, 24", cut 0-6'	lf	40	20.00	7.00
RR xing, compl exc MHs	ls	job	6,000	5,000
RC diversn weir box, compl	ls	job	4,000	6,000
MH, 4'ϕ construct	vf	380	20.00	30.00
ring & cover	ea	45	35.00	40.00
Excavation, rock	cy	800	0.01	18.00
Stabilize, trench bottom	cy	110	7.25	6.00
Conc, encase, block, etc	cy	10	30.00	50.00
Pavement, remov & replace	lf	2,820	1.00	3.00

Sewage Treatment Plant

1C	Industrial Builders, Inc., Anderson, S.C.	$479,703
2	Fiske-Carter Constr. Co., Greenville, S.C.	483,200
6	Arthur Pew Constr Co., Chamblee, Ga.	509,894
EE	City of Gainesville, Ga.	521,780

Bids: 6-1-59 Items	Unit	Quantity	Unit Prices 1C	2
Grading, site prep, construct all plt structs, MHs, vlvs & meter pits; furn & instl pumps, motors, starters, vlvs, inside & outside pipe; plt fab equip & furn; all elec wk; place plt in perm oper	ls	job	$451,106	$452,900
Digester recirc syst compl w all elec & pipe work ready for perm operation	ls	job	12,486	11,300
Sewage recirc pump, well & pipe compl w all elec wk & ready for perm operatn, furn all labor, equip & mtl	ls	job	6,158	8,350
Asph rdwy & park area pave	sy	2,475	1.90	2.00
Conc walkway paving	lf	1,200	1.25	1.00
Excavation, rock	cy	500	7.50	9.00

Two skewed box bridges for . . .

Vicksburg, Miss., Bypass

To bypass the City of Vicksburg, the State Highway Department of Mississippi let two contracts totalling $1,069,752 for 5.579 miles of grading, drainage, culverts, two box bridges and an underpass on U. S. Hwy 61, between Vicksburg and Blakely, to Hyde Construction Co., Inc., Jackson, Miss.

Work to be Performed	No. of Miles	Amt. of Contract	% below Engr. Estw
Grading, drainage, culverts, 2 box bridges	5.562	$955,549	12.0
Underpass	0.017	114,203	16.0
Total	5.579	$1,069,752	12.5

Frank H. Lacey, Vicksburg, is the project engineer.

Sixteen bids came in on the grading and box bridge contract, and nine on the underpass. One of the box bridges, skewed at 30 deg, will be 24x8x273 ft. A triple box bridge, skewed at 40 deg, will be 14x14x161 ft. Roadway width of the bridges is 48 ft. The 0.017-mile underpass will have a roadway width of 26 ft and a 2.5 ft wide sidewalk.

(Continued p. 76)

Texas & Pacific Railway vertical-lift bridge, crossing the Inter-Coastal Waterway new locks in Port Allen, Louisiana. Fastened with 22,000 Sheffield High-Strength Bolts. Erected by W. B. Smiley Steel Co., Lake Charles, La., General contractor, T. L. James Co., Ruston, La.

Fastening of this bridge will STAY TIGHT because of Sheffield High-Strength Bolts

Wherever roads and rails run, the trend is to high-strength bolting for bridges. Sheffield High-Strength Bolts banish the expensive maintenance problem of loosening rivets. Rivets often loosen in a year under the pounding of railroad service. These bolts *stay tight*.

With something like 100,000 bridges to maintain, the railroads have a lot to gain by using bolts instead of rivets. New bridges go up faster. Installation of bolts costs less. Fastening strength is greater.

Two men with little training can install about 400 bolts a day, compared with 300 to 350 rivets for a highly skilled (and hard to get) four-man riveting crew. Net costs: leading erectors say 50c per bolt as compared with 80c per rivet.

These savings are true with buildings, too. Framing is complete weeks sooner on average structures. Bolting is easier, safer, quieter work. And the fastening is as permanent as the life of the structure, even under severe vibrational loads. Get all the facts from your nearest Sheffield office.

SHEFFIELD

ARMCO

High-Strength Structural Bolts

Successor to the Rivet

Write today for Sheffield's High-Strength Bolt booklet. Gives the complete story, plus specifications approved by Research Council on Riveted and Bolted Structural Joints.

SHEFFIELD DIVISION

ARMCO STEEL CORPORATION

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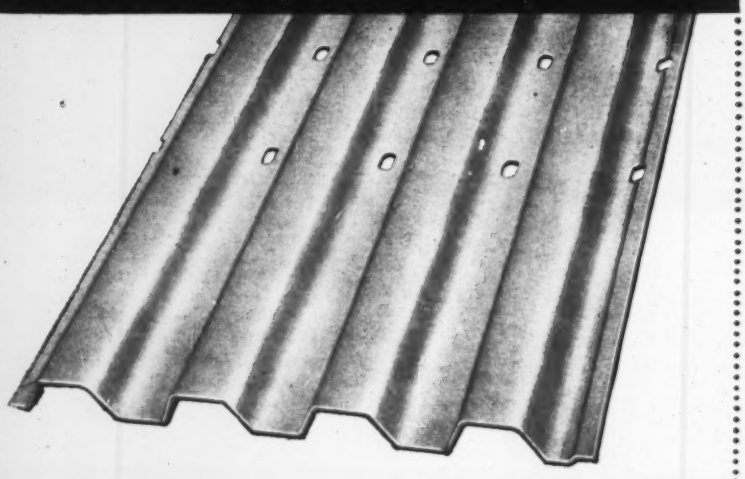
U.S.F.



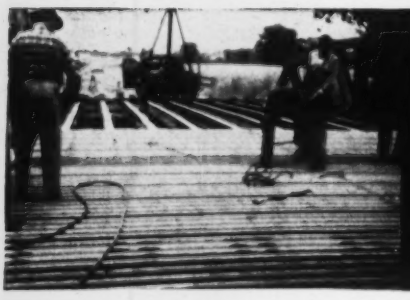
$$\frac{\$ \times m}{yr} = BF \quad \text{USF}$$

Figures prove that the dollars ($) spent in the maintenance (m) over a period of years (yr) in many cases are much greater than permanent improvement with the strength, durability and economy of USF

BRIDGE FLOORING

FOR BRIDGES, OVERPASSES, VIADUCTS, ETC.

Complete details for building or rejuvenating are available by writing...



USF

UNITED STEEL FABRICATORS, INC.
WOOSTER, OHIO

Highway Guard Rail • Bridge Flooring
Steel Forms for Concrete Bridge Decks
Corrugated Metal Pipe • Window Wells
Metal Doors & Frames • Metal Buildings

. . . Vicksburg Bypass

For the roadway, all bidders chose cutback asphalt for the prime coat, placing no bids on the emulsified asphalt alternate.

Liquidated damages for failure to meet completion schedules are limited to actual engineering personnel costs.

The cement factor for the Class B concrete is 1.50.

Minimum wages include: carpenter, $1.75; cement mason (finisher), $2.25; crane, derrick and dragline operator, $2.00; truck driver, $1.35; bulldozer operators, rough, $1.50, finishing, $2.00; scraper operator, $2.00; oilers and greasers, $1.50; piledriver operator, $1.25; roller operator, $1.25; loaders, $1.50; mechanics, $2.00; common laborer, $1.00.

The bidding on the two contracts included:

Underpass

1C Hyde Constr. Co., Jackson, Miss	$114,203
2 Delta Constr. Co., Jackson, Miss	126,927
9 John H. Moon & Sons, Ridgeland, Miss	169,034
EE Frank H. Lacey, Proj. Engr, Vicksburg	138,039

Bids: 5-26-59 Items	Unit	Quantity	Unit Prices 1C	2
Excavation, bridge	cy	207	$3.50	$2.00
Conc, cl B, bridge	cy	837	55.00	67.00
Steel, structural	cy	2,484	0.50	0.60
reinforcing	lb	243,542	0.13	0.145
Concrete slope paving	cy	50	44.00	50.00
aluminum railing	lf	821	12.00	11.00
Test piles, conc, 14x14"	ea	2	1,185	750.00
Loading tests	ea	1	1.00	250.00
Precast conc piling, 14x14".	lf	1,820	6.90	6.95
18x18".	lf	1,200	8.30	8.25

Completion schedule: 150 working days

Grade, Drain, Culverts & Bridges

1C Hyde Constr. Co., Inc., Jackson, Miss	$955,549
2 H. W. Caldwell & Sons, Inc., Ashland City, Tenn	1,014,814
16 T. L. & W. Constr. Co., Tupelo, Miss	1,175,914
EE Frank H. Lacey, Proj. Engr., Jackson	1,086,169

Bids: 5-26-59 Items	Unit	Quantity	Unit Prices 1C	2
Clear & grub	ls	job	$40,000	$75,000
random	ac	5	157.00	200.00
Bri, left sta 303+00 remov	ls	job	4,000	100.00
303+50 remov	ls	job	600.00	100.00
307+50 remov	ls	job	300.00	100.00
Exc, uncl, FM	cy	2,242,022	0.225	0.23
structural	cy	3,461	1.45	2.25
haul, FM	sta yd	19,301,514	0.0025	0.003
Base crse, clay grav, LVM	cy	1,544	2.60	2.00
Surf crse, clay grav, LVM	cy	1,500	2.70	2.00
Asph, cutback, prime coat	gal	1,700	0.19	0.18
cmt, surf treatment	gal	3,333	0.18	0.18
Cover aggregate, type I	cy	82	nb	7.75
type IV, uncrushed	cy	82	7.75	nb
Seal cov aggr, tp VI, cr grav	cy	41	7.95	7.75
Conc, cl B, box bridge	cy	2,227	37.80	43.00
	cy	378	62.50	55.00
Reinforcing steel	lb	374,827	0.13	0.13
Pipe culv, 15"	lf	440	3.40	3.15
18"	lf	1,548	4.25	4.00
24"	lf	1,648	6.25	6.00
30"	lf	496	8.65	8.00
RCP culv, standard str, 42"	lf	188	14.85	15.00
extra str, 18"	lf	1,360	4.80	4.50
24"	lf	3,102	7.10	6.50
30"	lf	1,820	8.90	9.00
36"	lf	300	13.20	12.50
42"	lf	1,228	17.10	16.00
48"	lf	328	20.50	19.00
60"	lf	764	30.75	29.50
RCP, flared end, culv, 18"	ea	6	50.00	50.00
CMP, bit ctd paved invert, pipe D spout, 15"	lf	220	4.35	4.50
elbows, 15"	ea	12	26.00	35.00
Gratings	lb	1,615	0.57	0.60
Paved ditch	cy	200	42.50	55.00
Rt of way markers, type I	ea	149	6.00	6.00
Agricultural limestone	t	170	28.00	32.00
Super phosphate	t	85	58.00	70.00
Seeding	ac	85	160.00	150.00
Veget matl for mulch, method A	t	230	48.00	65.00
Asph for mulch, method A	gal	32,732	0.27	0.25
Solid sodding	sy	5,000	0.68	0.60

Completion schedule: 300 working days

Designed for today's concrete placement techniques

Uni-Form Panels have changed over the years to keep pace with modern concrete forming practice.

Today's Uni-Form Panels weigh a little more (about ½ lb. per foot) than other pre-fab form panels because *they are designed and built to meet today's requirements.*

We know that if the assembled concrete form is to have the structural rigidity necessary to withstand today's concrete placement techniques and high rates of pour, the individual panels which make up the form must have great inherent strength.

We produce the strongest form panel we know how to build. The great strength—and extra weight—of Uni-Form Panels is due almost entirely to the special "T" section steel frame which supports the struts or load bearing members of the panel.

Most specification concrete does not permit deflection in the forms. If the form panel does not have the strength to take the stresses imposed by normal concrete construction practices, it is a liability that can cause serious problems

Uni-Form Panels are designed to take the full strength of the tie, plus a wide safety factor to avoid any possible deflection or permanent set in the load bearing member. Concrete formed with Uni-Form Panels will be straight and true.

Because they are so strong, you don't have to "baby" Uni-Form Panels. *You don't have to make major changes in your method of handling and placing concrete.* You can apply the heaviest practical pressures and highest pouring rates to a Uni-Formed concrete form with assurance that it will stand up and take it.

When you rent or buy any pre-fab form, it will pay you to consider carefully what you're getting. If you want a panel that is built to give you maximum forming speed, economy, efficiency, and service life—look to Uni-Forms. More contractors are using them every day because Uni-Forms deliver where it counts . . . on the job.

Write for the UNI-FORM Panel Catalog. It contains complete details on the industry's most modern and flexible concrete forming system.

UNIVERSAL FORM CLAMP CO.

"Products from the Gold Tool Room"

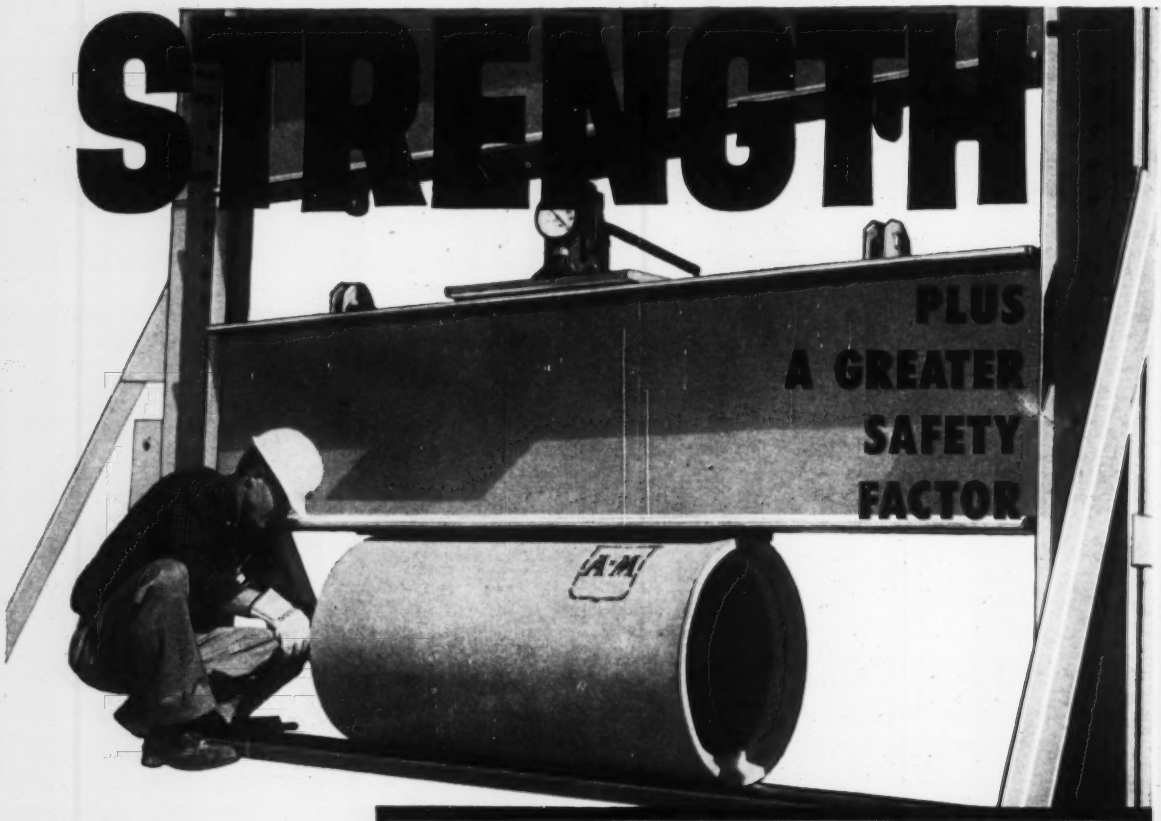
1238 N. KOSTNER AVENUE • CHICAGO 51, ILLINOIS

BRANCH OFFICES and WAREHOUSES:

ATLANTA BALTIMORE CLEVELAND HOUSTON
LOS ANGELES SAN LEANDRO TORONTO

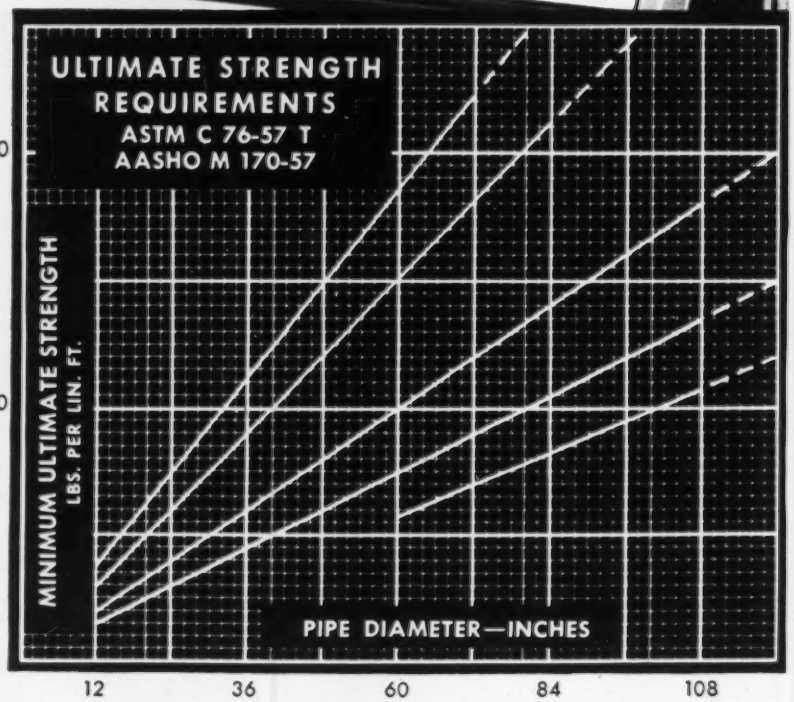
STRENGTH

PLUS A GREATER SAFETY FACTOR



COMPARE THESE CONCRETE PIPE STRENGTHS WITH ANY OTHER

All classes of reinforced concrete pipe for greater strength and safety factor —as well as standard and extra strength non-reinforced concrete pipe— are available from American-Marietta Company to meet ASTM, AASHO and Federal Specifications.



AMERICAN-MARIETTA COMPANY
CONCRETE PRODUCTS DIVISION
GENERAL OFFICES:
AMERICAN-MARIETTA BUILDING
101 EAST ONTARIO STREET, CHICAGO 11, ILLINOIS, PHONE: WHITEHALL 4-5600

Materials and Labor Prices

Market Quotations by ENR Field Reporters

IRON AND STEEL PRODUCTS — PER 100 LBS. BASE MILL PRICES

	STRUCT SHAPES—	PLATE CARBON STEEL	REINF BARS* billet	RIVETS ½-in. structural	SHEET PILING Base	STEEL RAILS Per Net Ton Standard	STEEL RAILS Per Net Ton Light	TRACK SUPPLIES Angle Bars	TRACK SUPPLIES Std Spikes	TRACK SUPPLIES Tie Plates	TRACK SUPPLIES Track Bolts
Birmingham Area	$5.50	$5.30	$5.675	$12.25		$110.50	$130.00	$6.975	$9.75	$6.60	.....
Chicago Area	5.50	5.30	5.675	12.25	$6.50	110.50	130.00	6.975	9.75	6.60	.....
Pittsburgh Area	5.50	5.30	5.675	12.25	6.50	110.50	130.00	6.975	9.75	6.60	$14.75
Buffalo Area	5.50	5.30	5.675	12.25	6.50	110.50	130.00	6.975	9.75	6.60	14.75
Cleveland	.....	.....	5.675	12.25	6.50	.....	.....	.....	.....	.....	14.75
Youngstown Area	.....	.....	5.675	.....	.....	.....	.....	.....	9.75	.....	.....
Geneva	5.50	5.30	.....	.....	.....	.....	.....	.....	.....	.....	.....
Los Angeles	6.20	.....	6.375	.....	6.80	.....	.....	.....	9.75	6.875	.....
Pueblo	.....	.....	.....	.....	.....	.....	.....	80.75	9.75	6.60	.....

* Fairless Works, $5.575.

IRON AND STEEL PRODUCTS — F.O.B. WAREHOUSE, PER 100 LBS., BASE PRICE

	STRUCTURAL SHAPES Per 100 lb. base price	STRUCTURAL SHAPES Extras, New York:	REINFORCING BARS Per 100 lb., base price 5 tons to carload lot New billet	REINFORCING BARS Rail steel	REINFORCING BARS Extras, New York:	EXPANDED METAL LATH Per 100 sq. yd., carload lots Std. diamond mesh. 3.4 lb.	EXPANDED METAL LATH Std. ribbed 3.4 lb.	WELDED FABRIC REINFORCING Per 100 sq ft., carload lots fob mill
Atlanta	$9.40		8.75	$8.75		$53.00S	$57.00S	
Baltimore	9.70		9.00T			44.50	49.00	
Birmingham	9.00ty		8.99ty	8.99ty		59.00p K	76.00p K	
Boston	9.12 K		8.75t	8.75t		49.80 K	84.00 K	
Chicago	9.15u		7.16qu	7.16qu		52.00‡U	63.00‡U	
Cincinnati	9.55ukt		9.04‡	.....		44.50 Kq	49.00mn Kq	
Cleveland	8.48at		7.14ct	.....		46.50 KL	51.00 KL	
Dallas	10.40M		9.00	9.00		44.00u	48.50u	
Denver	10.16c K		9.25c	.....		63.00m	69.00m	
Detroit	9.56a	9.06M	7.15Q	11.85Q		55.00O	63.00O	
Kansas City	9.82aT		8.10 N	.....		49.00	60.00	
Los Angeles	8.90dkt		7.35frt	.....		55.00S	64.00S	
Minneapolis			9.20T	9.20T		44.50 K	49.00 K	
Montreal	7.90-8.60xCF/8.20-8.90AsF		7.00/7.50FGi	7.00/7.50FGi		65.70h	70.20h	
New Orleans			8.00gkts	.....		48.50 K	53.50 K	
New York	9.84‡s		8.60ty	8.60y		52.00n	59.00ns	
Philadelphia	9.20b		8.23	.....		44.50‡U	55.20‡U	
Pittsburgh	9.00y		7.35y	.....		49.50‡rw	54.00‡rw	
St. Louis	9.48stz		7.75‡tzQ	7.75‡tzQ		61.00wx K	82.00wx K	
San Francisco	9.90aS		9.85S	.....		52.00S	56.00S	
Seattle	10.20aD		8.85DM			67.00‡nD	73.50‡nD	
Toronto	9.20H		7.85	7.85		48.10pqJ	55.10pqJ	

Quantity extras, per cwt: under 100#, +$10; 100-399#, +$7; 400-999#, +4.00; 1000-1999#, +1.25; 2000-4999#, base price; 5000-9999#, −25c; 10,000-19,999#, −50c; 20,000-29,999#, −75c; 30,000# and up, −1.25

EXTRAS, per cwt.—♦Quantity (applies to L/L shipments only): under 1,000#, +$1.50; 1000-1999#, +$1.00; 2000-3999#, +50c; 4000-9999#, +30c; 10,000-19,999#, +20c; 20,000-29,999#, +10c; 30,000 up, none. ♦Steel: #2 +$2.50; #3 +$1.40; #4 +$1.00; #5 +70c; #6, #7, #8, #9, #10, #11 +50c. ♦Bending: heavy, +90c; light +$2.20 (except in New York City and surrounding metropolitan area where bending must be done on the job). ♦Engineering (details and planning done by others): over 500 tons, +45c; 200-499 tons, +50c but not over $4500; 75-199 tons, +65c but not over $2000; 20-74 tons, +75c but not over $975; 5-19 tons, +85c but not over $300; under 5 tons, +$1.00 but not over $85. Min. charge $25. Design only: +90c.

	WELDED FABRIC REINFORCING Per 100 sq ft., carload lots fob mill
4 × 18 in., No. 5 & 10 wires — Joliet, Ill., Donora, Pa., Monessen, Pa.	$7.04
4 × 12 in., No. 8 & 12 wires — Joliet, Ill., Donora, Pa., Monessen, Pa.	$2.62
6 × 8 in., No. 6 & 6 wires — Joliet, Ill., Donora, Pa., Monessen, Pa.	$4.17

♦‡ Delivered. ♦* Aver. of Canadian & American. ♦† add 4% sales tax. ♦a 2000-4999#. ♦b 10,000-19,999#, fob city. ♦c 20 tons or over. ♦d 10,000-29,999#. ♦e Intermediate struct'l. ♦f Incl. delivery in free zone. ♦g CL. ♦h list price; dominion tax exempt; add provincial and municipal taxes. ♦i add provincial and municipal sales taxes. ♦j intermediate and hard grade. ♦k fob city. ♦l delivered; contractor to do unloading. ♦m copper alloy. ♦n LCL. ♦o asphalt coated. ♦p 500 sq. yd. or more. ♦q 2.5 lb. ♦r less 2% disc. for cash. ♦s 2,000-4,999#. ♦t less ½% disc. 10 days. ♦u add 7.5c switch. ♦v incl 15c del. ♦w truck lots. ♦x add 2% sales tax. ♦y add 15c del.. ♦z add 10c del. ♦A American made. ♦C Canadian made. ♦D ½% for cash. ♦E 30,000# or over. ♦F Federal tax exempt for bldgs. ♦G add 10c del. ♦H 8.85 without tariff charges. ♦I 3 lb $60.00. ♦J 4 lb $47.50. ♦K less 2% disc. 10 days. ♦L F.o.b. Youngstown plant. ♦M 5,000-9,999#. ♦N 2,000-19,999#. ♦O 100 sy lots. ♦Q 5 tons to CL. ♦R: revised. ♦S less 2% disc. 10th. ♦T less ½% disc. 10th of mo. ♦U less 2% disc 10 days.

PLUMBING, HEATING, WATER, SEWER AND DRAIN PIPE

	C. I. PIPE PRICE INDEXa	ASBESTOS CEMENT PIPE Z per lin. ft. 6" Press Cl. 150	ASBESTOS CEMENT PIPE Z per lin. ft. 12" Sew Cl. 1500	CLAY SEWER PIPE Per ft., delivered, car load ASTMC 13-55 8 in.	CLAY SEWER PIPE ASTMC 13-55 12 in.	CLAY SEWER PIPE ASTMC 200-58T 24 in.	CLAY SEWER PIPE ASTMC 200-58T 36 in.	CLAY DRAIN TILE† Per 1,000 ft., car load lots, f.o.b. ASTMC 4-55 6 in.	CLAY DRAIN TILE† ASTMC 4-55 8 in.	CONCRETE SEWER PIPE‡ Per ft., delivered ASTMC 14-55 12 in.	CONCRETE SEWER PIPE‡ ASTMC 14-55 24 in.
Atlanta	130.5	$1.61/1.69	$2.36/2.48	$0.55r	$1.05r	$4.50r	$12.50r	$209.00sr	$334.00r	$0.92m Kr	$3.68m Kr
Baltimore	140.1	1.61/1.69	2.19/2.30	665	1.20	5.05	12.71	187.80	289.20	1.01	2.75
Birmingham	125.8	1.61/1.69	2.26/2.37	50r	95r	4.14rw	11.00rw	296.00rz	433.00rz	1.25rS	2.75rS
Boston	143.1	1.63/1.71	2.19/2.30	784qrtL	1.512qrtL	6.255qrtM		215.40tr	330.60tr	1.56S	3.47S
Chicago	140.9	1.61/1.69	2.19/2.30	93rm	1.78rm	7.52rm	21.10rm	220.00Hr	330.00Hr	1.30	4.00
Cincinnati	135.5	1.63/1.71	2.19/2.30	616rt	1.188rt	4.725rt	12.40r	270.00r	400.00r	85rAB	3.25rAB
Cleveland	141.7	1.63/1.71	2.19/2.30	69BCN	1.32BC	5.13BC	13.33BC	155.40mBC	240.60mBC	1.35	3.60P
Dallas	137.8	1.63/1.71	2.26/2.37	550‡B	96‡B	4.40‡B	9.75‡bB			1.25BD	2.85BD
Denver	148.2	1.71/1.80	2.36/2.48	52nr	96nr	3.93nr		460.00nr	580.00nr	1.05m	3.50m
Detroit	142.1	1.61/1.71	2.19/2.30	90mk	1.70mk	6.80mk	18.50mk	182.00mk	280.50mk	1.10k	4.05k
Kansas City	138.5	1.61/1.71	2.26/2.37	61r	1.105r	6.104Br	16.50r	303.00r	581.00r	95r	3.25r
Los Angeles	148.6	1.70/1.79	2.19/2.30	82bl	1.78blS	7.19blS	16.90blST	410.00lS	590.00lS	1.24rE	3.66frE
Minneapolis	149.9	1.67/1.75	2.26/2.37	93oB	1.67oB	7.30oB				2.19DFH	6.31DFH
Montreal				1.13u	2.00u	7.00u	13.50u	288.00	545.00	1.17D	3.11pD
New Orleans	133.3	1.61/1.69	2.26/2.37	566r	1.12r	5.65r		240.50pr	490.00	95nl	3.75nl
New York	138.5	1.63/1.71	2.19/2.30	1.02	1.49R	7.58	19.48			1.50‡B	3.60‡B
Philadelphia	137.8	1.61/1.69	2.19/2.30	72‡	1.40‡	9.02‡r	24.68‡r	220.00‡	330.00‡	1.50‡h	4.00‡h
Pittsburgh	142.9	1.63/1.71	2.19/2.30	69K	1.32K	8.79K	24.15K	190.00	295.00	1.66Db	3.93DB
St. Louis	136.9	1.61/1.69	2.26/2.37	62r	1.15r	4.92r	12.68rS	200.00r	400.00r	1.50s	3.65
San Francisco	148.6	1.70/1.79	2.19/2.30	86‡d	1.86‡d	7.53‡d	18.00‡d	360.00‡f	620.00‡f	1.05‡Q	3.30‡Q
Seattle	149.0	1.71/1.80	2.19/2.30	85bk	1.83bk	7.61k		250.00‡rk		1.95sky	4.55sky
Toronto				80F	1.50F	6.00F		157.00F	280.00F	1.05F	4.62F

*WROUGHT STEEL PIPE (Full standard weight) Discount from list; see footnotes

Mill	Black %	Galv. %	Butt Weld* Black %	Butt Weld* Galv. %	Lap Weld* Black %	Lap Weld* Galv. %	2½ & 3 in., Butt Weld* Black %	2½ & 3 in., Butt Weld* Galv. %	3½ to 6 in., Lap Weld* Black %	3½ to 6 in., Lap Weld* Galv. %
Lorain, Ohio	13 75	+2 50	+2 50	+2 50	+2 50	+2 50	+2 50	+2 50	+13 50a	+13 50a
Alabuquipa, Pa.	13 75	+3 50	+3 50	+3 50	+2 50	+2 50	+2 50	+2 50	+13 50a	+14 50a
Sparrows Pt., Md.	17 25	+1 00	+1 00	+1 00						
Beowood, W. Va	13 75	+2 50	+2 50	+2 50	+2 50	+2 50	+2 50	+2 50	+13 50a	+13 50a
Youngstown, O	13 75	+2 50	+2 50	+2 50	+2 50	+2 50	+2 50	+2 50	+13 50a	+14 50a
Indiana Harbor, Ind.	12 75	+2 50	+2 50	+2 50	+2 50	+2 50	+2 50	+2 50	+13 50a	+14 50a
Sharon, Pa.	13 75	+3 50	+3 50	+3 50	+2 50	+2 50	+2 50	+2 50	+13 50ab	+13 50ab
Wheatland, Pa	13 75	+3 50	+3 50	+3 50	+2 50	+2 50	+2 50	+2 50	+13 50a	+13 50a
Etna, Pa.	13 75	+3 50	+3 50	+3 50	+2 50	+2 50	+2 50	+2 50	+13 50a	+14 50a
Fontana, Calif	0 75	+15 50b	+15 50b	+15 50b	+9 75ab	+9 75ab	+9 75ab	+9 75ab	+26 50ab	+26 50ab

* Threaded and coupled. a 3½ to 4 in. b Continuous weld. c to 1. 5 and 6 in. d 6 in. e Seamless. f 5 in.

‡ Extra quality. ♦‡ Extra strength. ♦‡ delivered. ♦ add 4% sales tax. ♦a PRICE INDEXES for CENTRIFUGAL CAST IRON PIPE (include carload freight allowed to city). These also serve as the HISTORICAL RECORD of THE 5 PER NET TON PRICE of CLASS B, B&S, PIT CAST IRON PIPE. F.O.B. Foundry Price Indexes: Birmingham, Ala., 125.8; Burlington, N. J., 134.6. For explanation of index see ENR Sept. 29, 1955 page 139. ♦b Extra strength. ♦c 4-in., $130. ♦d SS361-A. ♦f 21 in. ♦g culvert pipe; reinf., ASTM C 75-56. ♦h reinf., ASTM C 75-54. ♦i reinf., ASTM C 76-55. ♦j centrispun. ♦k less 2% disc. for cash. ♦l fob plant. ♦m truck del. ♦n LCL del., fob truck. ♦p less 5% disc. 10th. ♦p freight allowed to destination in city. ♦u 35,000 minimum. ♦r less 2% disc. 10 days. ♦s 1 ft lengths. ♦u CSA A 60. ♦v standard strength. ♦w SS: add 20% for d.s. ♦x fob city. ♦y Reinforced. ♦z Upper value in range based on both truck lots and less than truck lots, fob city; lower value truck lots delivered. ♦A single strength. ♦B truckload. ♦C less 2% disc. 15th. ♦D ASTM 76-57. ♦E less 1% disc. 10 days. ♦F less 2% disc. 30 days. ♦G LCL. ♦H CL. ♦I fob origin, freight allowed. ♦J reinf. B14 15. ♦K Less 2% disc. 15 days. ♦L ASTM 13-57. ♦M ASTM 200-57. ♦N 2 ft lengths. Trucklots. ♦O add 2% Sales Tax. ♦P 18 in. ♦Q less 1% disc. 10th. ♦S ASTMC 72, 12" 1.55, 24" 4.00. ♦T extra strength.

*** WROUGHT STEEL PIPE:** Deduct discounts shown above from the following standard list consumers carload prices to get mill price. List prices per ft. (*based on approx. $200 per net ton): Butt Weld ⅛ in., 8½¢; ¼ in., 8¢; ⅜ in., 8¢; ½ in., 8½¢; ¾ in., 11½¢; 1 in., 17¢; 1¼ in., 23¢; 1½ in., 27½¢; 2 in., 37¢; 2½ in., 88½¢; 3 in., 78½¢. Lap Weld 3½ in., 92¢; 4 in., $1.09; 5 in., $1.48; 6 in., $1.92. continuous weld same as lap weld prices. Add freight, 3% transport tax for destination price. † Production discontinued November 1957

WROUGHT IRON PIPE: List prices per ft. same as for wrought steelpipe, but add following "discounts" to get Pittsburgh mill price: Butt Weld—1 in. black, + 88.54, galv., + 95.77; 1¼ in. black, + 85.54, galv. + 95.23, 1½ in. black, + 81.79 galv. + 91.22; Lap Weld—2½ in. to 3 in. black + 67.93 galv. + 95.77; 4½ in. to 6 in. black + 84.74 galv. + 90.88 Add freight rates plus 3% transportation tax to get destination price.

Bids Asked—Low Bidders—Contracts Awarded—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager J. A. MAHONEY, M. WETZEL, M. E. SCIORRA, D. TARTAGLIA, MARIE MORAVSIK, ELAINE CHOMYAK, ELIZABETH WERRA, ELEANOR QUERET, Reports, J. H. WEBBER, E. R. HUBER, Statistics.

NEW ENGLAND

BUILDINGS—BA

Mass., Waltham—NURSERY—BA 8/28—Commonwealth of Mass., Dept. Mental Health, c/o Div. Bldg. Constr., 38 Chauncy St., Boston, M-58-18, nursery, Walter E. Fernald State School. $800,000. Plans deposit $50. W. Chester Brown & Assoc., 184 Boylston St., Boston, archts. CD 11/8/57.

HEAVY CONSTRUCTION—LB & CA

▲ MASSACHUSETTS—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,

M DeMatteo Constr. Co., 200 Hancock St., Quincy, Mass., CA $1,618,840, est. $1,672,292, state hy. relocation Rte. 140, U-120 (19) Taunton. Bids July 7. CD 7/10, under LB.

▲ Joseph Rugo, Inc., 115 Homes Ave., Dorchester, Mass., LB $3,758,000, est. $3,000,000, Contr. No. MPA-1-58-2-2, hangar, Logan Airport, EAST BOSTON, MASS. Commonwealth of Mass., Port Auth., 14 Court Square, Boston, Mass. Eastern Airlines, Inc., 250 Boylston St., Boston, Mass., lessee. J. E. Greiner Co., 1106 North Charles St., Baltimore, Md., engr. Bids July 31. CD 7/24.

BUILDINGS—LB & CA

▲ Theodore Loranger & Sons, 404 Ash Rd., New Bedford, Mass., LB $1,407,000, SENIOR HIGH SCHOOL, BOURNE, MASS. Town, School Bldg., Bourne, Mass. Bids July 29. CD 7/14.

▲ Turner Constr. Co., 38 Nesbury St., Boston, Mass., CA $1,200,000, LABORATORY, Rte. 128 and 3, BURLINGTON, MASS. Warrenton Corp., c/o contractor, Radio Corp. of America, lessee. Malcolm B. Wells, Cuthbert Blvd. and Cooper River Parkway, Merchantsville, N. J., engr.

George B. H. Macomber Co., 25 Fordham Rd., Allston, Mass., CA $418,000, est. $400,000, STUDENT HEALTH CENTER and INFIRMARY, Mount Holyoke College, SOUTH HADLEY, MASS. Mount Holyoke College, Business Mgr., South Hadley, Mass. Bids June 2. CD 6/8, under LB.

Ley Constr. Co., 124 State St., Springfield, Mass., LB $749,786, HOSPITAL addn., alterations, SPRINGFIELD, MASS. Wesson Memorial Hospital, 140 High St., Springfield, Mass. Cleverdon, Varney & Pike, 120 Tremont St., Boston, structural engrs. Bids July 28. CD 7/10.

▲ W. J. Megin, Inc., 51 Elm St., Naugatuck, Conn., CA $2,800,000, superstructure, second phase of second unit, 150,000 KW POWER PLANT, Bridgeport Harbor, 10 Henry St., BRIDGEPORT, CONN. United Illuminating Co., 80 Temple St., New Haven, Conn. Bids June 9, awarded July 30. CD 5/26.

Samuel Roberts, 33 Sky Top Drive, Fairfield, Conn., Owner Builds, $570,000, 57 HOUSES, University Dr., FAIRFIELD, CONN. CD 7/29.

Powers Realty Co., Jennings Rd., Fairfield, Conn., Owner Builds, $460,000, 46 HOUSES, Jennings Rd., FAIRFIELD, CONN. CD 7/29.

Sherwood Builders, Inc., 436 Farmington Ave., Hartford, Conn., Owner Builds, $470,000, 47 HOUSES, "Stodmer Village" Rte. 10, GRANBY, CONN. CD 7/31/58.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

† Newfoundland, Argentia—FUELING SYSTEM—BA 8/17—Area P. Wks. Office, New York, Room 633, Federal Office Bldg., 90 Church St., New York 7, N. Y., overhead fueling system and exit taxiway for readiness hangars, U.S. Naval Station, NBy 26704, Spec. No. 26704/59. $250,000-$500,000.

BUILDINGS—BA

▲† D. C., Wash.—MUSEUM—BA 8/18—General Services Admin., Regional Office Bldg., 7th and D Sts. S.W., museum of history and technology, Smithsonian Institution. Total $36,000,000. Plans deposit $200. Extended date. Mckim, Mead & White, 101 Park Ave., New York, N. Y., archts. CD 6/23.

N. J., Lakewood—DORMITORY—BA 8/15—Georgian Court College, Lake Dr., dormitory, $650,000. Eggers & Higgins, 100 E. 42nd St., New York, N. Y., archts. CD 3/26.

HEAVY CONSTRUCTION—LB & CA

▲ Emerson Gardner Electric Co., Inc., 485 Lexington Ave. and Day & Zimmermann, Inc., 500 5th Ave., New York, N. Y., LB $1,625,593 (2 bidders), N-21, six bldgs. Niagara Switchyard, Niagara Proj., NEW YORK. New York State Power Auth., The Coliseum, 10 Columbus Circle, New York 19, N. Y. CD 8/15/57.

▲ Marinelli Constr. Corp., 149-44 22nd Ave., Whitestone, N. Y., LB $1,400,387, est. $1,902,900 (6 bidders), sanitary sewer, 157th Ave. from 84th to 87th Sts., etc. Queens Boro, NEW YORK. President Queens Boro, Queens Boro Hall, 120-55 Queens Blvd., Kew Gardens 24, N. Y. Bids July 29. CD 7/24.

† Edward R. Marden Corp., 233 Harvard St., Brookline 46, Mass., CA $865,700, GAM 77/72 facilities Griffiss Air Force Base, ENG-30-075-59-252, ROME, N. Y. U. S. Eng., 111 E. 16th St., New York 3, N. Y. Bids July 8. CD 7/21, under LB.

▲ NEW JERSEY—State Hy. Dpt., 1035 Parkway Ave., Trenton, Bids opened 7/29.

N. J.—P. T. & L. Constr. Co., 526 St. Hy. No. 17, Paramus, N. J., LB $857,275 (9 bidders), reconstr. 3.7 mi. Rte. 10 from Newark and Mount Pleasant Turnpike in Hanover Twp., through Parsippany-Troy Hills Twp., to Rte. 53 in Morris Plains, Morris Co. CD 7/6;

N. J.—Brann & Stuart, Inc., 336 Whitehead Rd., Trenton, N. J., LB $473,370 (6 bidders), ramps for new interchange to link US 9 with 3.7 mi. of Rte. 18, Madison Twp., Middlesex Co. CD 7/9.

▲ NEW JERSEY—State Hy. Dpt., 1035 Parkway Ave., Trenton,

Public Constructors, Inc., P.O. Box 247, Gloucester, N. J., CA $2,758,049, Interstate Rte. 80 bridge over Passaic River, between Paterson and East Paterson, Passaic and Bergen Counties. Bids July 16, awarded July 29. CD 7/21, under LB.

NEW JERSEY—State Hy. Dpt., 1035 Parkway Ave., Trenton, Bids opened 7/29.

Scaletti-Knowles, Inc., Pompton Lakes, N. J., LB $414,734 (9 bidders), grade separation at Salem St. on Rte. 10, Morris Co. CD 7/9.

Neptune Contg. Co., 193 N. California Ave., Atlantic City, N. J., LB $699,243, boardwalk redecking, rebuilding pavilions, Roosevelt Ave., ATLANTIC CITY, N. J. City Comrs., City Hall, Atlantic City, N. J. George Deventon, City Hall, Atlantic City, N. J., city engr.

MARYLAND—State Rds. Comn., 300 W. Preston St., Baltimore, Zone 3,

McLean Contr. Co., Fidelity Bldg., Baltimore 1, Md., CA $777,418, 28 span steel beam bridge over South River at Riva, 0.29 mi. grading, drainage and surf. approaches. AA-525-1-517, Anne Arundel Co. CD 7/1, under LB.

▲† Frederick Constr. Co., 615 N. Market St., Frederick, Md., CA $1,574,064, hangar, ENG-49-080-59-62(59), ANDREWS AIR FORCE BASE, MD. U. S. Eng., 1st and Douglas St. N.W., Wash., D. C. CD 6/2;

F. D. Rich, 520 Summer St., Stamford, Conn., CA $594,000, heating plant for Air Base, ENG-49-080-59-62(59) (Andrews Air Force Case, Md.). CD 6/9, under LB.

BUILDINGS—LB & CA

Max Hoffman, 789 Franklin Ave., Brooklyn 16, N. Y., Owner Builds, Est. $475,000, 6 story APARTMENT and 19 car GARAGE, 303 99th St., BROOKLYN, N. Y. Seelig & Finkelstein, 153 Pierrepont St., Brooklyn 2, N. Y., archts. CD 7/23.

▲ White Constr. Co., 95 Madison Ave., New York, N. Y., CA $2,485,000, HOSPITAL addn., MORRISTOWN, N. J. Bd. Trustees Morristown Memorial Hospital, Madison Ave., Morristown, N. J. Bids July 22. CD 7/29, under LB.

▲ Navarro Corp., 6219 Broad St., Pittsburgh 6, Pa., CA $2,000,000, 5 story HOSPITAL WING addn., PITTSBURGH, PA. Magee Hospital, Forbes and Halket Sts., Pittsburgh 13, Pa. Voorhees, Walker, Smith, Smith & Haines, 101 Park Ave., New York, N. Y., archts. Bids July 28.

Lardner & Wich, 5716 York Rd., Baltimore 12, Md., CA $400,000, brick, block CHURCH AND SCHOOL, ARBUTUS, MD. Church of the Ascension, Maple Ave., Arbutus, Md. F. P. Kelly, 10 W. 23rd St., Baltimore 18, Md., archts.

Industrial Engineering Co., 350 S. Dukeland St., Baltimore 23, Md., LB $478,862 (10 bidders), 2 story, brick, concrete, steel SCHOOL 159 ADDN., BALTIMORE, MD. City Bureau Bldg. Constr., 410 Municipal Bldg., Baltimore 2, Md. Bids July 22. CD 7/24.

▲ Consolidated Engineering Co., 20 E. Franklin St., Baltimore 2, Md., CA $1,200,000, Mercy HIGH SCHOOL for GIRLS, Loch Raven Blvd. and Northern Parkway, BALTIMORE, MD. Sisters of Mercy, Mount Washington, Baltimore, Md. Bids June 10. CD 5/15.

John L. Vandegrift, Liberty Trust Bldg., Cumberland, Md., LB $488,854 (3 bidders), brick, concrete, steel, block DINING HALL, Frostburg State Teachers College, FROSTBURG, MD. State of Maryland, Dpt. Pub. Imprvts., 301 W. Preston St., Baltimore, Md. Walton & Madden, 3510 Rhode Island Ave., Mt. Rainer, Md., archts.

▲ Prescott Constr. Co., 1307 W. St. N.W., Wash., D. C., CA $3,000,000, 168,000 sq. ft. Hecht DEPARTMENT STORE, Marlow Heights Shopping Center, Branch Ave. and St. Barnabas Rd., near UPPER MARLBORO, MD. Eastern Shopping Center, Inc., 6-L Mall Walk, Yonkers, N. Y. Abbott Merkt & Co., 630 3 Ave., New York, N. Y., archts.

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $53,000, other public works $88,000, industrial buildings $110,000; other buildings $400,000. Also Foreign projects of $1,000,000 and more in size of Interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England	**Middle West**
Middle Atlantic	**Mississippi to Rockies**
South	**Far West**

PROPOSED WORK

Water Supply	**Public Buildings**
Sewers, Waste Disposal	**Mass Housing**
Bridges	**Commercial Buildings**
Streets & Roads	**Industrial Buildings**
Earthwork, Waterways	**Unclassified**

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.

BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.

SOON LETS CONTRACT: SLC

LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.

CD dates shown are of Construction Daily Issue in which last previous report was published.

OWNERS, ENGINEERS, ARCHITECTS, CONTRACTORS are invited to report their new jobs for listing in these reports when they meet or exceed the size minimums shown above. Address these news releases to J. A. Mahoney, REPORTS, ENGINEERING NEWS-RECORD, 330 W. 42 St., New York 36, N. Y.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over
ENR	Engineering News-Record
CD	Construction Daily

For additional reports see Construction Daily.

SOUTH

BUILDINGS—BA

▲ N. C., Raleigh — CLASSROOM — BA 8/19 — North Carolina State College, Hillsboro St., 70,000 sq. ft. circular concrete frame classroom bldg. Plans deposit $100 for general contract, $50 each, other work. CD 6/19.

† Va., Little Creek—WHERRY HOUSING CONVERSION—BA 8/25—Dist. P. Wks. Office, 5th Naval Dist., Room 307, Bldg. N-26, U. S. Naval Base, Norfolk, conversion Wherry Housing Units to Public Quarters, Naval Amphibious Base, NBy 24225, Spec. No. 24225/59. $500,000-$1,000,000.

HEAVY CONSTRUCTION—LB & CA

▲ MISSISSIPPI—State Hy. Dpt., Jackson,

Miss.—Paul Anthony Constr. Co., Tupelo, Miss., CA $748,180, bridge and earth approaches 0.962 mi. Miss. Hy. No. 10 between West Point and Columbus Hy., Proj. F-0581 (2) Clay and Lowndes Counties.

Miss.—Newsom Bros., Columbia, Miss., CA $102,429, est. $102,600, bridge 0.045 mi. Hy. No. 24 between Fort Adams and Woodville, Miss. Hy. Proj. S-0253 (3) A, Contr. 1, Wilkinson Co.;

Miss.—Pigford Bros. Inc., Hy. 11 S. Meridian, Miss., CA $728,574, est. $733,200, bridges 0.123 mi. Interstate Hy. No. 59 between Meridian and The Alabama Line, Proj. I-76-094-2 (8) (old) 1-16-59-5 (5) 162 (new), Contr. 12, Lauderdale Co. Grand total $1,579,183. Bids July 28. CD 7/27.

▲ MISSISSIPPI—State Hy. Dpt., Jackson,

Miss.—L & A Contg. Co., Hy. 79 N. Bypass, Hattiesburg, Miss., CA $221,313, est. $232,000, double bit. surf. tr. on Un-numbered County Rd. between U.S. Hy. No. 90 and Bayou Casotte Industrial Area, Hy. Proj. F-033-1 (5), Jackson Co.;

Miss.—Clark Bros. Co., 309 SW Jefferson Ave., Peoria, Ill., CA $225,768, est. $250,300, base and c. conc. Miss. Hy. No. 42 through Petal, 0.856 mi. Hy. Proj. U-0631 (1), Forrest Co.;

Miss.—M. & W. Constr. Co., Tupelo, Miss., CA $1,112,384, est. $1,120,800, base and asphalt paving 4.217 mi. Interstate Rte. No. 59 and U.S. Rte. No. 80 between Meridian and Alabama Line, Hy. Proj. I-16-094-2 (8) (old) 1-1G-59-3 (5) 162 (new) Contr. 1, Lauderdale Co.;

Miss.—Newsom Bros., Columbia, Miss., CA $479,682, est. $480,000, grading, culverts, topping, 2 box bridges 7.419 mi. Miss. Hy. No. 24 between Fort Adams and Woodville, Proj. S 0253 (3) A, Contr. 1, Wilkinson Co.;

Miss.—T. O. Whitaker, Woodville, Miss., CA $175,968, est. $212,700, grading, culverts, topping and box

(Continued on page 82)

Six Marions Work Here

This 93-M 2½ yard shovel is one of six Marions which keep the rock rolling at a Pennsylvania cement plant.

Another 93-M, three Marion electric shovels built nearly 35 years ago and a Marion 362 diesel dropball complete the Marion equipment team at this busy operation producing in excess of a million tons a year.

The reasons why Marion is preferred equipment in many quarries, large and small, in many parts of the world deserve your investigation. Get the facts on today's Marion quarry machines - - today. Modern Marion electric quarry machines are available in sizes from 2½ to 10 yards.

CONSULT MARION MINING SPECIALISTS

for lowest costs on your property!

MARION POWER SHOVEL COMPANY - MARION, OHIO, U.S.A.

A Division of Universal Marion Corporation

(Continued from page 80)

bridge and 1 bridge Miss. Hy. No. 563 between Wilkinson and Crosby, Hy. Proj. 5-0156 (2) A, Wilkinson Co.;

Miss.—A. A. Bush, Contr., Hy. 15, N. Laurel, Miss., CA **$89,182**, est. $85,900, base and double bit. surf. tr. 4.934 mi. Miss. Hy. No. 531 between Taylorsville and Bay Springs, Hy. Proj. S-0335 (7) A, Smith and Jasper Counties. Grand total $2,304,297. Bids July 28. CD 7/17.

† **Ferry & Wright, Inc.**, 4510 Poplar Level Rd., Louisville 13, Ky., LB **$424,247**, est. $829,982 (11 bidders), two, 280 ft. each continuous I-beam bridges, approach roads, Rough River Reservoir, Breckenridge Co., CIVENG-15-029-59-72, KENTUCKY. U. S. Eng., P.O. Box 59, Louisville 1, Ky. Bids July 28. CD 6/24.

BUILDINGS—LB & CA

† **Southside Plumbing Co., Inc.**, Farmville, Va., CA **$671,220**, modification, repairs to 328 APARTMENTS, Wherry Housing, IFB TC 44-019-59-210, FORT EUSTIS, VA. Purch. & Contg. Div., Fort Eustis, Va. CD 7/21/58.

▲ **Kaul Co.**, Chain Bridge Rd., McLean, Va. CA Est. **$1,000,000**, SHOPPING CENTER, Chain Bridge Rd. near Old Dominion Dr., McLEAN, VA. McLean Shopping Center, Inc., McLean, Va. General Engineering Assocs., 810 18th St. N.W., Wash., D. C., engrs. CD 1/20.

Basker Building Corp., Box 4312, Miami Beach, Fla., CA **$550,000**, Colonial Plaza MOTEL and pool, northeast corner Colonial Rd. and Primrose Dr., ORLANDO, FLA. The Colonial Plaza Motel, c/o Lapidus, Kornblath, Harle & Liebman, archts., 940 Lincoln Rd., Miami Beach, Fla. Lambert & Dell'Abate, 124 E. 40 St., New York, N. Y., structural engrs. Bressman & Feder, 1700 N.E. 159 St., North Miami Beach, Fla., mech. engrs.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

▲ **Ill., Chicago**—BA 8/18—Dpt. Purchases, City Hall, Zone 2, No. 80.82-59-28, 11½x9 monolithic concrete and 60 in. concrete pipe, Combined Union Ave. Sewers, $1,900,000. Plans deposit $50. B. C. Eilers, 320 N. Clark St., ch. engr. CD 2/13.

HEAVY CONSTRUCTION—LB & CA

WISCONSIN—State Hy. Comn., State Office Bldg., Madison.

John A. Gallagher, 629 Olin Ave., Madison 5, Wis., CA **$470,045**, Structure B-13-83 and approaches, Fish Hatchery Rd. Interchange, U. S. Hy. 12, Contr. 1, Proj. F 04-2(28), Dane Co. Bids July 7. CD 7/13, under LB.

WISCONSIN—State Hy. Comn., State Office Bldg., Madison. Bids opened 7/28.

Wis.—**L. G. Arnold**, 2011½ N. Dewey, Eau Claire, Wis., LB **$456,222** (8 bidders), Structures B-11-24, 25, 26, 37, 38, 39, 40 and 41, Lake Delton-Madison Rd. (Wisconsin River-S.T.H. 60), Interstate Hy. 90, Contr. 2, Proj. I-90-2(8)111, Columbia Co.;

Wis.—**Highway Pavers**, Wauwatosa, Wis., LB **$208,187** (11 bidders), Structure B-40-82 and B-40-83, East-West Expressway (64th St. overpasses) Interstate Hy. 94, Contr. 1, Proj. I-94-4(30)305, Milwaukee Co.;

Wis.—**Concrete Constr.**, Wauwatosa, Wis., LB **$217,250** (11 bidders), Structures B-40-84 and B-40-85, East-West Expressway (68th St. overpasses) Interstate Hy. 94, Contr. 1, Proj. I-94-4(40) 305, Milwaukee Co. CD 7/10.

▲ **WISCONSIN**—State Hy. Comn., State Office Bldg., Madison. Bids opened 7/28.

Wis.—**Robert W. Ryan Co.**, Janesville, Wis., LB **$751,696** (11 bidders), subbase, base annd structures B-14-43, B-14-44 and B-28.22, 4.299 mi. Watertown Relocation, U. S. Hy. 16, Contr. 1 and 2, Projs. F 06-2(15), F FG 06-2(16) and F 06-2(17), Dodge and Jefferson Counties; LB **$361,698** (4 bidders), base and c. conc. 5.183 mi. USH 14-North County Line Rd., S.T. Hy. 26, Contr. 1, Proj. T 010-1(20), Rock Co.;

Wis.—**McLean-Astleford Co.**, 7701 Harriet Ave., Minneapolis, Minn., LB **$420,885** (7 bidders), grade, subbase and Structures B-47-28, 29 and 30, 8.429 mi. Ellsworth-Martell and Ellsworth-Waverly Rds., U. S. Hy. 63, Contr. 1, Projs. S 0289(4) and S 075(9), Pierce Co.; LB **$155,349** (5 bidders), grade and base course 5.946 mi. Siren-C.T.H.A. and Frederic-Lewis Rds., S.T. Hy. 35, Contr. 1, Projs. T 028-3(12), T 028-4(14) and T 028-3(13), Aux. 3.1, Burnett and Polk Counties;

Wis.—**Hoffman Constr. Co.**, Black River Falls, Wis., LB **$1,041,055** (11 bidders), subgrade and Structures B-11-42 to 48, 6.485 mi. Lake Delton-Madison Rd. (Wisconsin River-S.T.H. 60), Interstate Hy. 90, Proj. I-90-2(8)111, Columbia Co.;

Wis.—**Bushman Constr. Co.**, 3706 Broadway, Kansas City, Mo., LB **$674,330** (7 bidders), concrete pavement 6.489 mi. Dubuque-S.T.H. 35, and Dubuque-Dickeyville Rds., and Main St., Village of Dickeyville, US Hys. 61 and 151, Projs. F 012-1(37), F 012-1(38), and T 012-1(19), Grant Co. CD 7/10.

Siesel Constr. Co., 514 E. Ogden Ave., Milwaukee, Wis., LB **$669,000**, Br. No. 1, 15 m.g. underground water storage basin, Howard Ave., MILWAUKEE, WIS. City, City Hall, Milwaukee, Wis. Bids July 28. CD 7/14.

BUILDINGS—LB & CA

▲ **Mayfair Homes, Inc.**, Lockbourne and Rathmell Rds., Columbus, O., Owner Builds; **$7,500,000**, 600-HOME Hamilton Meadows, Subdivision, south of COLUMBUS, O.

▲ **Gibbons-Grable Co.**, Mellett Bldg., Canton, O., CA Est. **$1,500,000**, 1 story, 150,000 sq. ft. steel CHEMICAL PROCESSING PLANT, HOLMESVILLE, O. Addressograph Multigraph Corp., 1200 Babbitt Rd., Cleveland 32, O. CD 7/29, under LB.

▲ **George A. Fuller Co.**, 111 W. Washington St., Chicago 2, Ill., CA **$10,000,000**, 20 story OFFICE, Monroe St., Wacker Dr. and Adams St., CHICAGO, ILL. Hartford Fire Insurance Co., 410 N. Michigan Ave., Chicago 10, Ill. Awarded July 27. CD 10/15, under Adams Monroe Wacker Corp., as owner.

Mel White, Inc., 6910 N. Clark St., Chicago, Ill., CA Est. **$500,000**, 60 unit MOTEL, swimming pool, adjacent to junction US 14 andn ILL. Rte. 31, near McHENRY (West McHenry P. O.) ILL. Ray Platt, 2956 Peterson Ave., Chicago, Ill.

D. Ganser & Assocs., 9203 W. Blue Mound Rd., Wauwatosa, Wis., LB **$553,690** (7 bidders), VILLAGE HALL, swimming pool, recreational facilities, ELM GROVE, WIS. Village, 13555 Juneau Blvd., Elm Grove, Wis. Bids July 23. CD 6/23, under Unclassified.

▲ **A. Z. Shmina & Sons Co.**, 6275 Schafer St., Dearborn, Mich., CA **$950,000**, PHARMACY RESEARCH LABORATORY, CA 3/23; CA **$540,000**, BOTANICAL GARDENS BLDGS., Dixboro Rd., ANN ARBOR, MICH. Regents University Michigan, Ann Arbor, Mich.

MISSISSIPPI TO ROCKIES

BUILDINGS—BA

▲ **Wyo., Cheyenne**—SCHOOL—BA 8/18—School Dist. No. 1, 2118 Central Ave., 1 story, 152,000 sq. ft. Senior High School, north of Pershing Blvd. $2,600,000. Kellogg & Kellogg, 2309 Warren Ave., and Sam C. Hutchings, 1902 Thomas Ave., archts. CD 11/12.

▲ **Tex., El Paso**—MOTEL, etc.—Bids Asked—T. Jack Foster & Sons, 4777 E. 31st St., Tulsa, Okla., 400 unit motel. $3,000,000; sanitary-storm sewers $110,000, water sys. $60,000, site earthwork $65,000, hard-type area paving $90,000; 39 acre site Carlsbad Hy. at International Airport. CD 4/24.

HEAVY CONSTRUCTION—LB & CA

† **M. J. McGough Co.**, 1954 University Ave., St. Paul, Minn., CA **$663,499**, radar facilities, Air Force Station, ENG-21-018-59-31 BAUDETTE, MINN. U. S. Eng., 1217 U. S. Post Office & Custom House, St. Paul, Minn. CD 7/24, under LB.

Lysne Constr. Co., Blooming Prairie, Minn., LB **$319,000**, interceptor sewers; LB **$108,500**, pumping station, STILLWATER, MINN. City, City Hall, Stillwater, Minn. Bids July 28. CD 7/1;

Acton Constr. Co., 1871 West County Road C, St. Paul, Minn., LB **$406,000**, treatment plant, (Stillwater, Minn.).

▲ **ARKANSAS**—State Hy. Dpt., State Capitol, Little Rock.

Ark.—**Pioneer Contg. Co.**, 453 Plum Ave., Memphis, Tenn. CA **$1,585,544**, bridge, ramp and frontage road, 7.893 mi. Interstate Rte. 55, Mississippi Co.

Ark.—**E. E. Barber Constr. Co.**, 722 Wheeler St., Fort Smith, Ark., CA **$1,153,327**, north approach to Third Bridge over Arkansas River at Little Rock-North Little Rock, Pulaski Co. Bids July 22, awarded July 23. CD 7/8, under Streets and Roads.

▲ **ARKANSAS**—State Hy. Dpt., State Capitol, Little Rock.

McGeorge Contg. Co., Inc., Nebraska, Pine Bluff, Ark., CA **$1,054,246** paving, 12.57 mi. Pochontas-Corning Rd. Hy. 67, Randolph and Clay Counties. Bids July 22, awarded July 23. CD 7/8.

† **H. Halverson, Inc.**, 11 N. 5th, Grand Forks, N. D., LB **$646,500**, est. $571,750 (4 bidders), G/A Transmitter-Receiver Power Plant, electrical distr. and recreation workshop, Fortuna Air Force Station, ENG-25-066-59-2, FORTUNA, N. D. U. S. Eng., 1709 Jackson, Omaha 2, Neb. Bids about July 28. CD 7/7.

▲† **Guy F. Atkinson Co. & Ostrander Constr. Co.**, 10 West Orange Ave., South San Francisco, Calif., LB **$19,367,462** (6 bidders), power house superstructure and surge tank bases, Oahe Reservoir Proj. near Pierre, ENG-25-066-59-127, SOUTH DAKOTA. U. S. Eng., 1709 Jackson St., Omaha 2, Neb. Bids July 30. CD 5/21.

▲† **J. A. Tobin Constr. Co.**, 3701 Rainbow Blvd., Kansas City, Kan., LB **$2,149,380**, est. $2,651,271, Sherman Dam, Missouri River Basin Proj., Lou City, Sherman Co., Spec. DC 5214, NEBRASKA. Bureau Reclamation, Dpt. Interior, St. Paul, Neb. Bids July 30. CD 6/24.

Heidenfels Bros., 521 McBride St., Corpus Christi, Tex., CA **$625,714**, shell lined trench, 3rd unit sanitary sewer main laterals and Savage Lane and Koser Rd. to Hy. 44, CORPUS CHRISTI, TEX. City, City Hall, Corpus Christi, Tex. Bids July 22. CD 7/29, under LB.

† **B. H. Baker**, P.O. Box 173, Colorado Springs, Colo., CA **$859,138**, est. $876,738 (6 bidders) Schedule 2, Sundance TM Site 201, Cantonment Area, Sundance, ENG-25-066-59-132, WYOMING. U. S. Eng., 1709 Jackson, Omaha 2, Neb. Bids July 23, awarded July 24. CD 6/23, under LB.

BUILDINGS—LB & CA

Adolfson & Peterson, 2817 Bryant Ave. S., Minneapolis, Minn., CA **$513,500**, TERMINAL, County Rd. C and N. Snelling Ave., ROSEVILLE (P.O. ST. PAUL) MINN. Interstate Properties, Inc., 820 Hampden Ave., St. Paul, Minn. CD 6/29, under LB.

▲ **Alpha Corp.**, Richardson, Tex., CA Est. **$1,650,000**, 320x400 ft. and 13,500 sq. ft. mezzanine, steel frame, precast concrete PLANT addn., CEDAR RAPIDS, IOWA. Collins Radio Co., 50th St. and C Ave. N.E., Cedar Rapids, Iowa.

Hargrave Implement Co., Tipton, Iowa, Owner Builds, **$500,000**, 1 story, 46x100 ft., and 1 story 60x140 ft. FACTORY, TIPTON, IOWA.

Hardesty-Johnson Realty Co., Inc., Hy. 140, Florissant, Mo., Owner Builds, **$800,000**, 100 addnl. brick RESIDENCES, in Lynn Haven Subdivision, FLORISSANT, MO.

Crestvale Homes, Inc., 620 McKnight Rd., St. Louis 24, Mo., Owner Builds, **$404,600**, 50 frame RESIDENCES in Vashon Park Subdivision in School Dist. R-3, ST. LOUIS COUNTY, MO.

▲ **Collie Constr. Co., Inc.**, 610 W. 3 St., Little Rock, Ark., LB **$1,000,000**, Broadway Plaza SHOPPING CENTER, LITTLE ROCK, ARK. J. Weingarten, Inc., 600 Lockwood, Houston, Tex. CD 1/27.

Suburban Homes Realty & Lumber Co., 901 Little York Rd., Houston, Tex., Owner Builds, **$450,000**, 60 low price DWELLINGS; **$420,000**, 56 DWELLINGS, "Oakwilde" Subdivision, HOUSTON, TEX. CD 7/16.

▲ **Mead & Mount Constr. Co.**, Denver Club Bldg., Denver, Colo., LB **$3,560,730**, St. Anthonys HOSPITAL addn., DENVER, COLO. St. Anthonys Hospital, West 16 and Quitman Sts., Denver, Colo. Bids July 29. CD 7/7.

FAR WEST

HEAVY CONSTRUCTION—LB & CA

UTAH—State Rd. Comn., State Capitol, Salt Lake City. Bids opened 7/28.

Jack B. Parson Constr. Co., Springville, Utah, LB **$749,490**, 3½a in. plant mix bit. surf. 2.013 mi. St. Rd. 82 between Tremonton and Garland, Proj. 1664, Box Elder Co. CD 10/10/57.

▲ **CALIFORNIA**—State Hy. Engr., Public Works Bldg., 1120 N. St., Sacramento.

Judson-Pacific Murphy Div., Yuba Consolidated Industries, Inc., 4300 Eastshore Hy., Emeryville, Calif., CA **$5,769,000**, Benecia-Martinez Bridge substructure across Carquinez Strait, incl. 2,323,000 lb. bar reinforcing steel, precast prestressed concrete piling, 41,030 lin. ft., 414 driving concrete piles, 9,800 lin. ft. concrete filled caissons, etc., X-IV-Sol, C.C.-75A, H. Contra Costa and Solano Counties. Bids July 22. CD 7/24, under LB.

▲ **CALIFORNIA**—State Hy. Engr., P. Wks., Bldg., 1120 N. St. Sacramento.

Judson-Pacific Murphy Div., Yuba Consolidated Industries, Inc., 4300 Eastshore Hy., Emeryville, Calif., CA **$8,469,485**, Benicia-Martinez Bridge superstructure across Carquinez Strait, Incl. 12,020,000 lb. structural steel, 2,341,000 lb. bar reinforcing steel, 6,705,000 lb. low alloy structural steel and 7,195,000 lb. structural steel, etc. X-IV-Sol-C.C.-75A, Contra Costa and Solano Counties. Bids July 23. CD 7/27, under LB.

▲† **Montgomery Ross Fisher Co., Inc. & L. M. Halper & Co.** 10835 Santa Monica Blvd., Los Angeles, Calif., LB **$2,456,472**, (14 bidders), BOMARC IM-99B facility, Vandenberg Air Force Base, ENG-04-353-59-104, LOMPOC, CALIF. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids July 28. CD 7/6.

▲ **Clyde W. Wood & Sons, Inc.**, 6900 Tujunga Ave., North Hollywood, Calif., LB **$3,116,959**, (8 bidders), Proj. 1, earthwork and channel for Ventura marina, VENTURA, CALIF. Ventura Port Dist., 684 East Main St., Ventura, Calif. Bids July 28. CD 6/8;

Macco Corp. & R. A. Bianchi, 14409 South Paramount Blvd., Paramount, Calif., LB **$1,159,095**, (6 bidders), Proj. 2, rock jetty (Ventura, Calif.).

BUILDINGS—LB & CA

▲† **Robert E. Mckee, General Contractors**, Texas Ave., El Paso, Tex., CA **$5,131,100**, U. S. COURT HOUSE and FEDERAL OFFICE BLDG., PHOENIX, ARIZ. General Services Admin., 49 Fourth St., San Francisco 3, Calif. CD 7/1, under LB.

Beaxwood Homes, Inc., 9886 Garden Grove Blvd., Garden Grove, Calif., Owner Builds, **$614,800**, 47 DWELLINGS, Tract 3377, GARDEN GROVE, CALIF.

▲ **Laramore Constr. Co.**, 1111 Beverly Blvd., Whittier, Calif., CA **$1,400,000**, 119 DWELLINGS Tract 2817, GARDEN GROVE, CALIF. C. & E. Co., 1111 Beverly Blvd., Whittier, Calif.

CANADA

BUILDINGS—BA

Que., Beloeil—PLANT—BA 8/18—Canadian Industries Ltd., 1253 McTill College Ave., Montreal, PETN plant (pentaerythritol teranitrate). $500,000. CD 2/19/57.

HEAVY CONSTRUCTION—LB & CA

▲ **QUEBEC**—Provincial Rd. Dpt., Parliament Bldgs., Quebec City.

Kennedy Constr. Co. Ltd., 407 McGill St., Montreal Que. and **Armand Sicotte et Fils Ltee.**, 950 Sherbrooke St. E., Montreal, Que., CA Est. **$10,000,000**, single lane hy. converted to double lane with center mall, Rte. 9 between St. Hubert and Belocil, St. Hubert. CD 3/7/57.

BUILDINGS—LB & CA

▲ **J. L. E. Price & Co. Ltd.**, 4664 St. Catherine St. W., Montreal, Que., CA Est. **$1,000,000**, BOYS HIGH SCHOOL, ST. JOHN'S, NEWFOUNDLAND. Episcopal Corp. of St. John's Newfoundland, St. John's, Newfoundland. Durnford, Bolton, Chadwick & Ellwood, 4101 Sherbrooke St. W., Montreal, Que., archts. Awarded July 24.

The R. Timms Constr. & Engineering Ltd., Lincoln St. W., Welland, Ont., LB **$976,796** (5 bidders), 2 story, 70,000 sq. ft. masonry 12-room COLLEGIATE, NI-

(Continued on page 87)

GMC

Lowest-priced, most-advanced construction trucks you can get all from GMC Operation "High Gear"

Operation "High Gear" is the most ambitious engineering, design and quality-control program ever launched in the truck industry. It is paying off for you right now in new truck values and new performance . . . bigger payloads and increased truck life.

This isn't talk—it's action. Look at these four pages and see for yourself.

SAVE MONEY WHEN YOU BUY A GMC TRUCK! Examples, the bright red 450 model with tandem axle costs up to several hundred dollars less to buy than other models in the 35,000 lb. GVW class! No other pickups compare with the Extra Value features and low list price of the orange Fleet Option. This true-truck-value is throughout the entire GMC Truck line.

SAVE WHILE YOU OWN A GMC TRUCK! The DW970, painted green, with trailerized dump and the yellow D860 bulk cement hauler are proof of the above statement. Here's why: Both are powered by the famous 6-71SE diesel engine that costs the least to own—proved by actual detailed owner records. More owner savings—when you need parts and service, you get everything you need, promptly, at your GMC Dealer. There's no need to go several places and lose valuable time. And remember, one warranty covers every GMC Truck, both chassis *and* engine.

There are many, many more reasons why GMC Trucks are your best investment, and your GMC Dealer will gladly tell you all. When you contact him, ask about the interesting on-the-job demonstration plan. Also mention that you have been assured of immediate delivery on most models.

GMC Truck & Coach . . . a General Motors Division

GMC OFFERS

BIGGEST CHOICE OF COMPONENTS!

There is never any need to "overrate" or "underrate" any GMC Truck or component, regardless of the hauling job. With the availability of hundreds of options, you are always sure to get the one truck with the ideal balance of power, capacity and ratio to keep running costs lowest and profits highest.

All GMC engines are famous for developing full usable horsepower and torque at low, practical engine speeds . . . well known for their exclusive fuel-saving characteristics. You get proved, dependable life. You get plenty of load-moving ability for every construction job without surplus power that increases ownership costs.

SIXES

130 hp.
140 hp.
160 hp.
217 hp.

V-8's

200 hp.
232 hp.

DIESELS

152 hp.
189 hp.
210 hp.

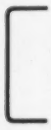
Five basic types of factory-installed frames are offered by GMC. You get extra years of trouble-free service because there is a size and type with adequate strength to support every load on any construction job . . . maintain proper alignment of chassis and body components.

Channel-type side rail

—with inverted "L" reinforcement

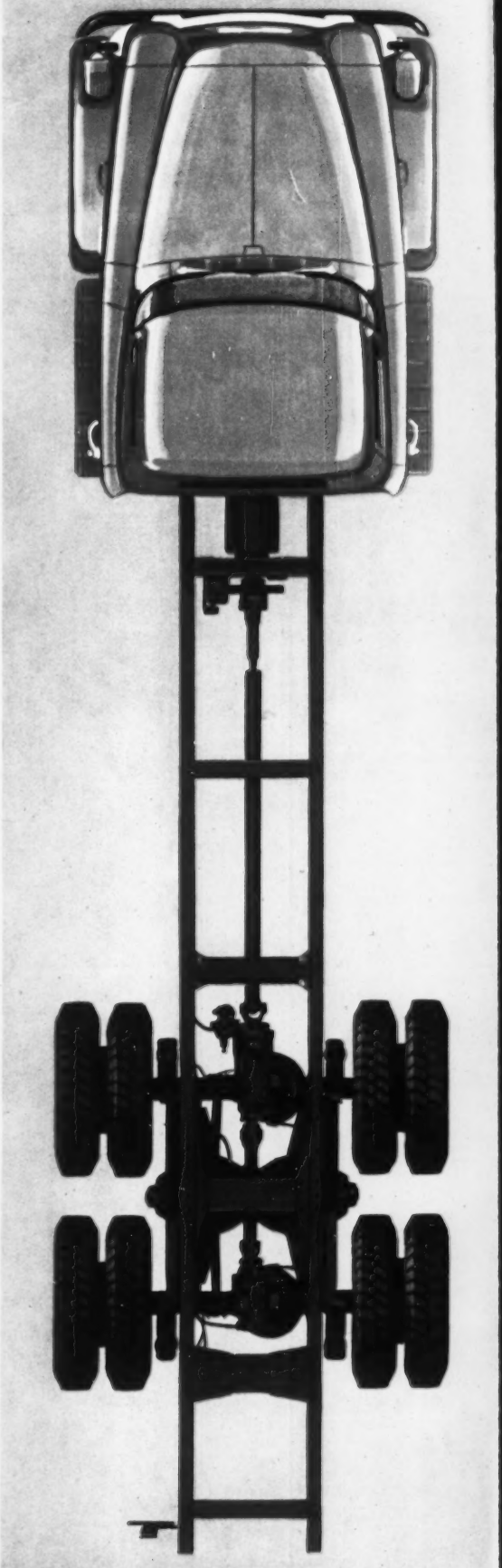
—with channel reinforcement

—with inverted "L" and channel reinforcement



Heat-treated side rails (Highway operations only)

GMC's "Power-Mated" drive-lines eliminate the costly penalties of mismatched transmissions and axles. From the hundreds of combinations, it is easy to get the desired shift pattern and final drive ratios to meet every load condition, gradeability and road-speed requirements . . . efficiently and dependably.



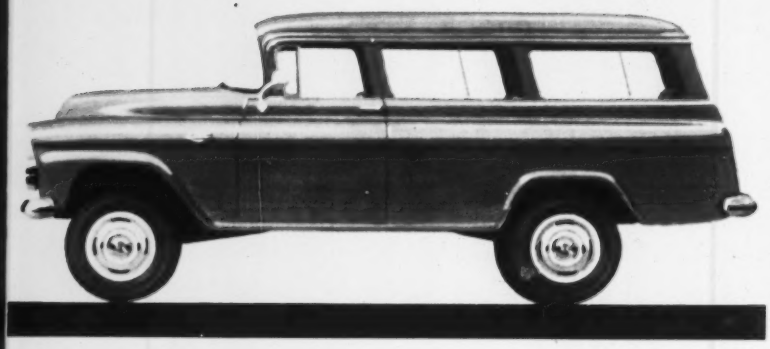
GMC BUILDS

BIGGEST CHOICE OF CHASSIS!

From the smallest job to the biggest project, there is a GMC Truck with the ideal load capacity and proper moving ability to save operating costs and keep work on schedule. You never have to compromise with a GMC, because no one builds a more complete line of models. Below are just a few examples.

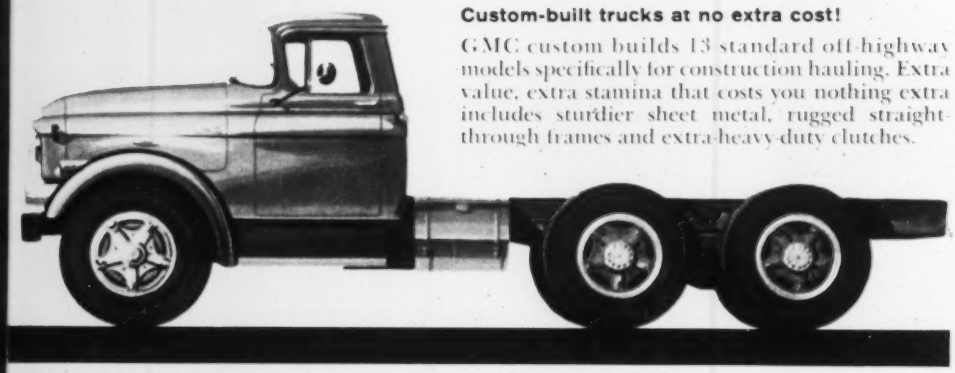
Haul up to 16% more ready-mix every trip!

The big load capacity of this Series FW550 six-wheeler means 24 less trips on 1,000 cubic yard jobs! Equipment includes lightweight heat-treated frame, engine-driven front PTO, aluminum wheels, aluminum saddles and walking beams. Less depreciation and lowest operating costs make this GMC the profitable investment for contractors everywhere.



Make your own roads!

GMC's 4x4 Suburban takes soft sand, sticky mud and deep snow right in stride! Carries 8 men up 60% grades! Available with thrifty, fuel-saving Six or mighty V-8.



Custom-built trucks at no extra cost!

GMC custom builds 13 standard off-highway models specifically for construction hauling. Extra value, extra stamina that costs you nothing extra includes sturdier sheet metal, rugged straight-through frames and extra-heavy-duty clutches.

GMC

GENERAL MOTORS CORPORATION

TRUCKS

From ½-ton to 45-ton—
General Motors leads the way!

(Continued from page 82)

AGARA FALLS, ONT. Stamford Dist. Bd. Educ., 1173 Drummond Rd., Niagara Falls, Ont. Bids July 22. CD 7/7.

▲ **Sirotek Constr. Co. Ltd.**, 1305 Baseline Rd., Ottawa, Ont., LB $1,622,000, brick-faced masonry GARAGE, STORAGE and OFFICE, St. Laurent Blvd., OTTAWA, ONT. Ottawa Transportation Comn., 56 Sparks St., Ottawa, Ont. Bids July 24. CD 6/30.

▲ **George Wimpey & Co. Ltd.**, 80 N. Queen St., Islington, Ont., CA $1,102,988, Victoria Park SECONDARY SCHOOL, TORONTO, ONT. North York Bd. Educ., 15 Oakburn Crescent, Toronto, Ont. CD 7/24, under LB.

▲ **Foundation Co. of Canada Ltd.**, 1900 Sherbrooke St. W., Montreal, Que., CA Est. $10,000,000, 1 story, 68 x 940 ft. PLANT EXPANSION, 90 x 720 ft. WAREHOUSE, LA TUQUE, QUE. Canadian International Paper Co.; Sun Life Bldg., Montreal, Que. Durnford, Bolton, Chadwick, Ellwood, 4101 Sherbrooke St. W., Montreal, Que., archts. Foundation of Canada Engineering Corp., 1980 Sherbrooke St. W., Montreal, Que., engrs.

Pentagon Constr. Co. Ltd., 5005 Namur St., Montreal, Que., CA Est. $500,000, 2 story, 30,000 sq. ft., rein.-con., brick, DYE HOUSE, MONTREAL, QUE. Dominion Textiles Co. Ltd., 1950 Sherbrooke St. W., Montreal, Que. Bids July 24, awarded July 27. CD 7/24.

PROPOSED PROJECTS

WATER SUPPLY

Alaska, Fairbanks—City, City Hall, storm drainage system. $600,000 Construction 1960. CD 2/3/54.

▲ **Colo., Boulder**—City, City Hall, defeated, $1,800,000 bonds, July 21, WW sys. expansion and transmission line into N. Boulder Canyon. CD 6/1.

▲ **Hawaii**—Bd. Water Supply, Beretania and Alpai Sts., Honolulu, Kula Water Development Proj. (2@) 150/57) addnl. storage reservoir, Maui, $1,-150,000; development of domestic water sys., Proj. (4@150-57), Kauai, $195,000.

▲ **O., Columbus**—City, City Hall, water mains on East Side, 48 in. mains from Morse Rd. treatment plant south in Stelzer Rd. to storage tanks at 5th and Joyce Aves. and south along James Rd. Hamoton Rd., Waverly Ave. to Livingston Ave. $2,180,-000. Burgess & Niple, 2015 W. 5th, consult. engrs. Robert Werner, city engr. CD 3/29/57.

▲† **Wash., Richland**—Atomic Energy Comn., 1901 Constitution Ave. N.W., Wash. 25, D. C., water plant expansion, 100 K area, Hanford, Proj. 60-a-6, $5,000,000 (authorized). CD 1/10/58, under Public Buildings.

SEWERS, WASTE DISPOSAL

▲ **Calif., Linda**—Linda County Water Dist., Hy. 99E bond election Sept. 8, sewerage sys. $1,450,000. CD 1/25/57.

▲ **Calif., Yorba Linda**—Yorba Linda County Water Dist., trunk sewerage lines and laterals. $1,800,000. Lowry, Overmyer & Assocs., Inc., 1020 Bush St., Santa Ana, consult. engr. CD 7/17.

▲ **Mass., Holden**—Town, Town Hall, 38 mi. lateral sewers, 3 mi. trunk sewers, 1 mi. force mains and pumping station. $2,495,000. To go ahead 1961.

▲ **N. Y., South Ozone Park**—Dpt. P. Wks., Room 2200, Municipal Bldg., New York, Zone 7, enlarging almost doubling Jamaica Sewage Treatment Plant. About $11,400,000. Gibbs & Hill, Inc., Penn Station, New York, consult. engr. sanitary work. Tippetts, Abbett, McCarthy & Stratton, 62 W. 47th St., New York, consult. engrs. structural work.

▲ **O., Heath**—Village, Village Hall, $1,000,000 bond election Nov. 3, sewers, four trunk sewers, necessary laterals, $560,000; 1 MGD cap. sewage treatment plant $490,000. Bird & Tietzel, 1989 Guilford Rd., Columbus, consult. engrs. CD 7/23.

▲ **O., North Olmsted**—City, 25128 Lorain Ave., bond election Nov. 3, sewage disposal plant and sanitary sewers in east end of city. $700,000. Floyd G. Browne & Assoc., 125 Church St., Marion, consult. engrs. CD 11/10.

O., Solon—Village, 6315 SOM Center Rd., bond election Nov. 3, sewers in central sewer district, $850,-000. CD 4/23.

▲ **O., Toledo**—Comrs. Lucas Co., Courthouse, sanitary sewers, bounded by Mellwood Ave., Ohio-Michigan state line, Herst Rd., Rowland Rd., with laterals running from Douglas Rd., Washington Twp., $1,858,-205; sanitary sewers serving Burdette and Glenn Sts. and Mona Lane, Washington Twp., $93,252. Raymond E. Hall, Jackman Rd., co. sanitary engr.

Tex., Corpus Christi—City, City Hall, 4th unit trunk main sanitary sewer line. $650,000. Reagan & McCaughan, Wilson Bldg., consult. engrs. CD 5/16/58.

Vt., Winooski—City, P. Wks. Dpt., sewage treatment facilities. $600,000. Morgenroth & Assoc., Inc., 294 Washington St., Boston, Mass., consult. engr. Constr. 1959.

▲ **Wash., Seattle**—Metropolitan Council, City of Seattle, City Hall, (six year program) tunnel from Lake City Plant to proposed West Point Sewage Plant on Puget Sound; 2nd sewage plant on Lake Washington; trunk sewer east side Lake Washington; sludge lagoons at Renton, $60,000,000. Bids on first section will be called about January 1961. Metropolitan Engineers (Brown & Caldwell, 66 Mint St., San Francisco, Calif., Hill & Ingman, 3104 Western St., Carey & Kramer, 1917 1st St., and R. W. Beck & Assocs., Tower Bldg., all Seattle), consult. engrs. CD 4/11/58.

BRIDGES

CONNECTICUT—State H. Dpt., 24 Wolcott Hill Rd., Wethersfield.

North Haven—rolled beam composit bridge on concrete abutments Overpass for Rte. 5A over Air Line Division N. Y., N. H. & H. R. R. at Muddy River, $700,000.

▲ **Ill., Chicago**—Comrs. Cook Co., County Bldg., Zone 2, highway overpass, 87th St. and Crawford Ave., $1,500,000. Hugo Stark, 130 N. Wells St., Zone 6, ch. engr.

▲ **Iowa, Dubuque**—City, City Hall, 4-lane overpass, sidewalks, approaches, 14th St. Extension East, $1,-691,000. Howard, Needles, Tammen & Borgendorff, 1805 Grand St., Kansas City, Mo., consult. engrs. CD 6/26/51.

▲ **O., Barberton**—City, City Hall, viaduct, Barberton to East Side, spanning Tuscarawas River, Ohio Canal and Pennsylvania RR tracks, linking Wooster Rd. in downtown area to Robinson Ave. on East Side, $1,500-000. Beiswenger & Hoch, 1006 Grant, Akron, consult. engrs. CD 11/7/57.

▲ **SASKATCHEWAN**—Dpt. Hys. & Transportation, Parliament Bldgs., Regina,

Laird—bridge across North Saskatchewan River near Laird at present Petrofka ferry site, $1,500,000.

STREETS AND ROADS

▲ **CALIFORNIA**—State Div. Hys., 1120 N. St., Sacramento.

Siskiyou Co.—U. S. Hy. 99 4 lane expressway for 3.2 mi. between Weed and Shasta River, incl. new bridge over Shasta River. $1,620,000.

▲ **HAWAII**—Territory of Hawaii, Territory Office, Honolulu,

Honolulu—Moanalua Rd. Aiea Interchange 0.2 mi. 2, 4 lanes, Proj. S0720(2), $2,119,000.

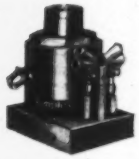
Likeliek Highway, Kaneohe Portal to Kam Highway, 2.4 mi., 4 lanes, Proj. S-0630(4), $778,000.

Kamehamehe Highway, Aiea Interchange, 0.2 mi. Proj. F 090 1 (4), $458,400.

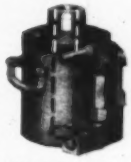
Pali Highway Portal 4 to Hairpin turn, outbound 0.6 mi., 2 lanes, Proj. FA 061-1 (8), $740,000.

81 hydraulic models to choose from!
THE WORLD'S MOST COMPLETE LINE

SIMPLEX



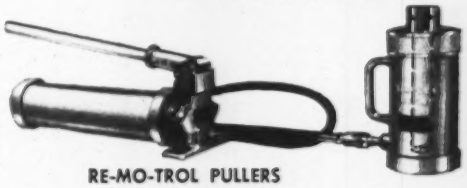
STANDARD HYDRAULIC JACKS
11 Models
1½ to 100 tons capacity
5¼" to 22" travel



"JENNY" CENTER-HOLE HYDRAULIC PULLERS
6 Models
30 to 100 tons capacity
3¼" to 10" travel

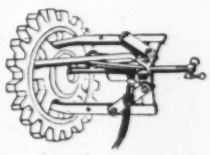
ROL-TOE FOOT-LIFT HYDRAULIC JACKS
3 Models
10 to 50 tons capacity

HYDRAULIC JACKS and PULLERS



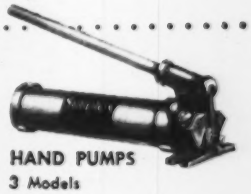
RE-MO-TROL PULLERS
Solid and Center-Hole Rams
39 Models
10 to 300 tons capacity

HYDRAULIC SERVICE and BUMPER JACKS
9 Models
1¼ to 20 tons capacity
13½" to 19" travel



HYDRAULIC PULLERS
4 Models
20 and 30 tons capacity
Push-Pullers, Double and Triple-Grip Pullers

POWERED PUMPS ELECTRIC, GAS OR AIR—6 Models



HAND PUMPS
3 Models

Look for further information on Lever and Screw Jacks in other advertisements.

TEMPLETON, KENLY & CO.
2353 Gardner Road
Broadview, Illinois

OHIO—Dpt. Hys., State Dpt. Bldg., Columbus, Zone 15, Lorain Co.—4-lane divided hy. between Rte. 57 and Baumhart Rd. as extens. to Rte. 254, $6,213,000.

▲ Pa., Erie—City, City Hall, road at waterfront. $6,410,000. Constr. 1961. CD 11/11.

EARTHWORK, WATERWAYS

▲† Arizona—City of Safford, and Town of Thatcher, Ariz. County of Graham, Safford, Ariz., Gila Valley Soil Conservation Dist., P.O. Box 408, Safford, Ariz., watershed protection Frye Creek-Stockton Wash, 153,714 acres for Soil Conservation Service. $4,946,894.

▲ Calif., San Jose—Santa Clara Valley Water Conservation Dist., 15420 Almaden Rd., $13,000,000 bond election Oct. 20; (1) aprox. 30½ mi. pipe line $9,115,000; (2) pipeline and canal surf. distr. sys. $1,000,000; (3) Central Water treatment plant in Cupertino-Monte Vista area $2,500,000; (4) surface distr. sys. Morgan Hill area., near Cupertino, Palo Alto and Morgan Hill. CD 4/13/57.

▲† Georgia—Towaliga Soil Conservation Dist. Rte. 3, Forsyth, Ga., Ocmulgee Soil Conservation Dist., Macon, Ga., watershed protection Tobesofkee Creek, 137,029 acres, Bibb, Lamar and Monroe Counties, for Soil Conservation Service, $1,322,502.

▲ Hawaii—Bd. Water Supply, Beretainia & Alapai St., Honolulu, Koke Irrigation Sys., Honolulu, $4,424,000.

▲† South Dakota—Lincoln Soil Conservation Dist., Hudson, S. D., Union County Soil Conservation Dist., Beresford, S. D., watershed protection Brule Creek, 142,720 acres Lincoln and Union Counties, for Soil Conservation Service. $3,205,709.

AIRPORTS

▲ O., Cleveland—JET FACILITY, etc.—National Aeronautics & Space Admin., Lewis Research Center 21000 Brookpark, Cleveland, Ion and plasma jet facility; zero-power reactor; in-pile loop, approx. 25 acres of land at Lewis Research center, $13,000,000 (fund authorized).

PUBLIC BUILDINGS

▲ Ark., Hot Springs—AUDITORIUM, etc.—City, City Hall, plans by I. G. & I. D. McDaniel, 800 Whittington Ave., municipal auditorium and convention hall, $1,250,000. CD 10/19/49.

Calif., Davis—STUDENT HOUSING—Bd. Regents, University California, c/o Arch. & Engrs. Office, University of California, Davis, plans by Clark & Beuttler, 552 Mission St., San Francisco, and Geo. T. Rockrise, 524 Sacramento St., San Francisco, married student housing $700,000.

▲ Calif., Marysville—SCHOOL—Union High School Dist. of Yuba County, plans by Hansen & Winkler, 1703 Elm St., high school. $2,346,930. CD 7/23.

▲ Colo., Aurora—SCHOOLS—Aurora P. Schools, 1085 Peoria, $1,950,000 bond election Sept. 28, schools.

▲ Colo., Buena Vista—DORMITORY—State Planning Div., State Office Bldg., Denver, plans by James H. Johnson & Assoc., 7675 W. 14 Ave., Denver, reformatory expansion incl. dormitory and admin. bldg. $1,800,000. CD 12/30.

Conn., Fairfield—SCHOOL—Town, Town Hall, plans by Lyons & Mather, 211 State St., Bridgeport, Greenfield Elementary School, Redding Rd. $780,000. CD 1/22.

▲ Hawaii, Honolulu—JAIL—City & County of Honolulu, City Hall, plans by Ernest Hara of Hara & Brown, Medical Art Bldg., Honolulu, jail. $1,500,000. Bids about November.

▲† Idaho, Arco—NATURAL CIRCULATION TEST PLANT, etc.—Atomic Energy Comm., Idaho Operations Office, Idaho Falls, natural circulation test plant, Proj. 60-e-11, $18,500,000 (authorized); nuclear test plant, Army Reactor Experimental Area, Proj. 60-e-7, $5,000,000 (authorized); portable gas-cooled reactor prototype, Proj. 60-e-2, $2,500,000 (authorized); alterations, modifications and addns. to MTR-ETR utility, technical and support installations, Proj. 60-e-3, $2,000,000 (authorized); modifications to experimental breeder reactor Numbered 1 (EBR-1), Proj. 60-e-1, $1,000,000 (authorized); chemical processing plant area utility modifications and imprvs., Proj. 60-e-5, $750,000 (authorized), above work at National Reactor Testing Station.

▲ Ill., Chicago—Bd. Educ., 228 N. LaSalle, plans by Hollabird & Root, 180 N. Wabash, 2 story Herzl, Howland, Penn Elementary School, Springfield and S. Avers, $1,000,000; plans by Ganster & Henninghausen, 222 Washington, Waukegan, 2 story Ward.

Ill., Galesburg—LIBRARY—Galesburg Library Bd., bond election Oct. 19, library, $700,000. Lankton, Ziegele, Terry & Assocs., 1100 Main St., Peoria, archts.

▲ Ill., Lemont—SUPPORT INSTALLATIONS, etc.—Atomic Energy Comm., Bailey and Bluff Rds., general support installations and utilities expansion, Argonne National Laboratory Proj. 6-e-10, $4,300,000 (authorized); misc. modifications and addns., Argonne National Laboratory, Proj. 60-f-1, $1,000,000 (authorized).

Ind., Indianapolis — SCHOOL — Decatur Twp. Schools, South High School Rd., plans by Hill & Wupper, Inc., Indiana Trust Bldg., Phase 1, high school, $700,000. Bids in September.

Ind., Kendallville—HOSPITAL—McCary Memorial Hospital, plans by A. M. Strauss & Assocs., Inc., 601 Strauss Bldg., Fort Wayne, hospital addn. $650,000. CD 1/16/58.

Iowa, Larchwood—SCHOOL—Bd. Educ. West Lyon Community School Dist., plans by Foss & Co., 28 N. 3 St., Moorhead, Minn., 1 story, 60,000 sq. ft. Central Junior High School, Hy. 26, about 4½ mi. south of, here. $900,000.

Kan., Hugoton—SCHOOL—High School Dist. No. 3 and Rural School Dist., plans by John W. Hines & Assoc., 447½ Ida St., Wichita, brick, concrete, Junior High School, $965,000.

Kan., Sublette—SCHOOL—Joint Rural High School Dist. 1, Haskell Co., plans by Williamson & Loebseck & Assoc., Rte. 9, Topeka, high school. $800,000. CD 5/7.

▲† Ky., Paducah—RAW WATER SUPPLY, etc. Atomic Energy Comm., Paducah Area, Paducah, addnl. raw water line; Proj. 60-a-5, $810,000 (authorized); cylinder storge area, Proj. 60-b-1, $500,000 (authorized).

Minn., Fergus Falls—AUDITORIUM, etc.—State Dpt. Admin., 19 State Capitol, St. Paul, remodeling auditorium and dining facilities $690,000, and completing ward remodeling and installing incinerator, $428,640, Fergus Falls State Hospital.

▲ Minn., Rochester—HOSPITAL—State Dpt. Admin., 19 State Capitol, St. Paul, continuous treatment bldg., Rochester State Hospital, $1,464,981.

▲ Mo., Clayton (P.O. Box St. Louis)—GARAGE—City, City Hall, multi-leveled garage, Central, Meramec, Carondelet and Bonhomme Aves. $1,500,000.

Neb., Grand Island—APARTMENTS—Hall County Housing Auth., Court House, plans by Clayton & Thomas & Benjamin, archts.-consult. engrs., West Hy. 30, 11 Fletcher apartments Proj., Golden Age Valley. $611,000.

▲ N. J., Basking Ridge—SCHOOL—Bd. Educ. Bernards Twp., referendum on bonds and project Oct. 6, high school, $1,532,000. Micklewright & Mountford, 4 Stuyvesant Ave., Trenton, archts. CD 6/24.

▲ N. J., Franklin Twp. (Middlebush P. O.)—SCHOOL—Bd. Educ., Franklin Twp., Middlebush, referendum bonds and project Sept. 22, high school adjoining Hillcrest School. $2,760,000. Micklewright & Mountford, 90 E. Stuyvesant Ave., Trenton, archts. CD 4/10.

(Continued on page 95)

THIS PANEL SUPPORTS ITSELF...

BUILDS SPANS UP

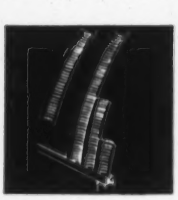
TO 184 FEET!

WONDER BUILDING®
"Truss-Skin"
ROOF SYSTEMS

There's nothing like it in the industry... a structural component that supports itself — and saves 50% in building costs, erection time! Double Corrugation is the reason. Patented double-curved and corrugated steel panels provide rugged strength and stability — span-free interiors. They're the only structural members required for the entire roof! Ask your Wonder Building distributor about "Truss-Skin" Roof Systems with this unique panel construction — or write Dept. L-859.

LOW-COST FINANCE PLANS AVAILABLE
Special purchase arrangements feature low down payment, attractive interest rates — budget installments.

RUGGED STRENGTH!
Bolt and nut assembly speeds erection, gives positive panel to panel connection . . . forms an unyielding roof with low weight-to-strength ratio.



PRE-ENGINEERED!
The board work is done, stress factors compiled — "Truss-Skin" roofs are precision-built, available in a wide range of widths, up to 184', in any length.

"ENGINEERED TO THE MARKETS"™

TRUSSLESS PATENTED Wonder Building®

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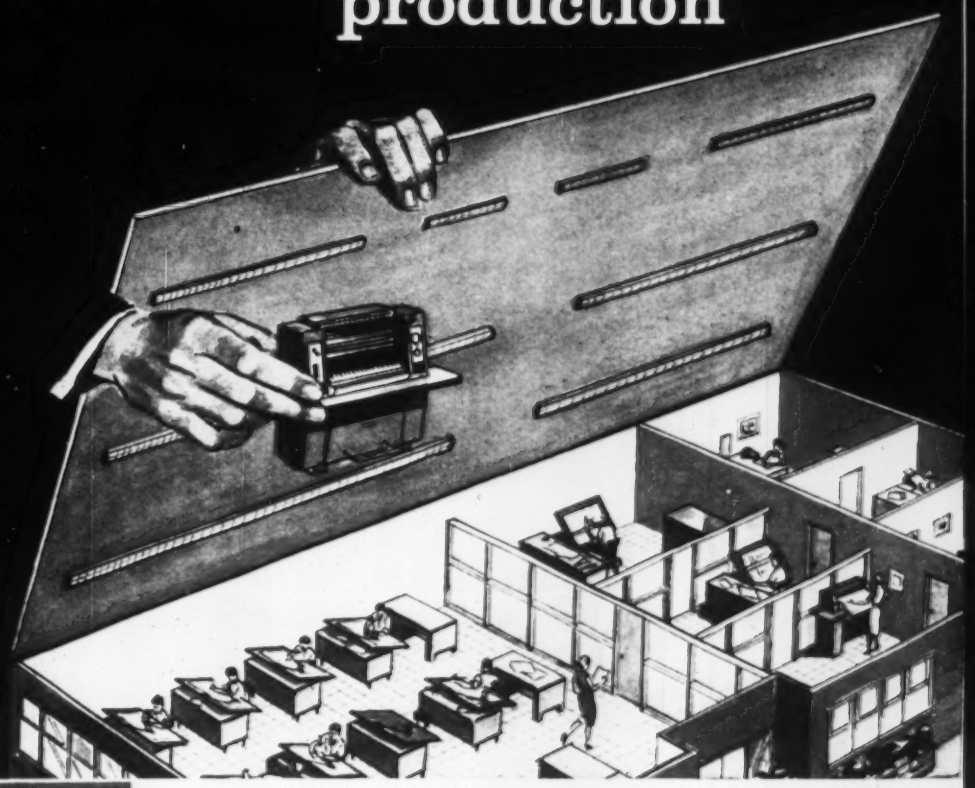
wonder building corporation of america
30 N. LaSalle Street
Chicago 2, Illinois.

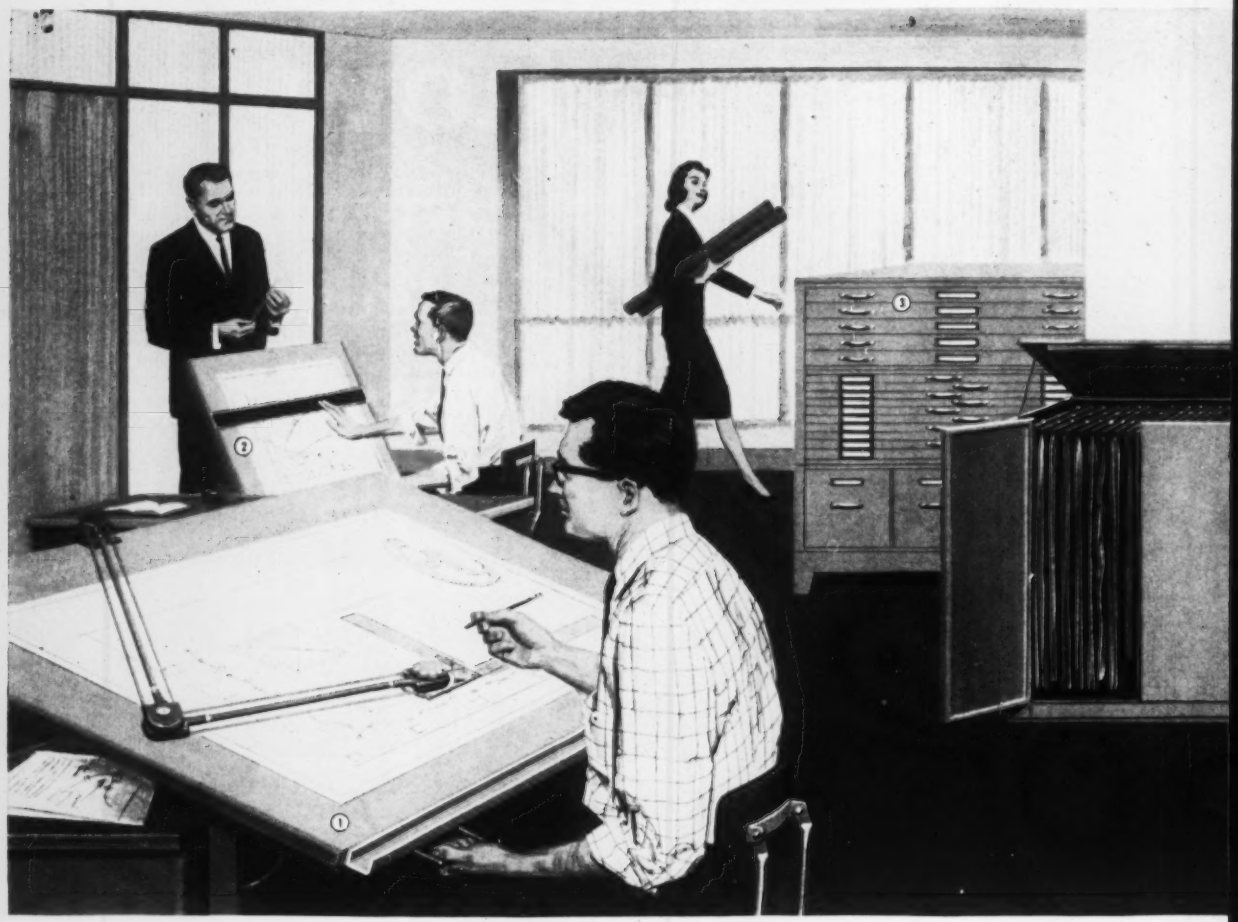
how the Bruning Man raises the "ceiling" on drafting room production



BRUNING

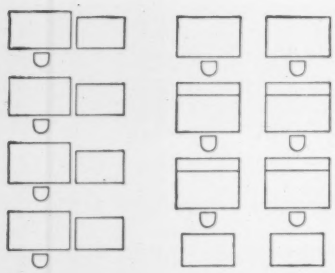
5 WAYS TO MODERNIZE YOUR DRAFTING DEPARTMENT FOR MORE MANPOWER, LOWER COSTS

In this era of fast, intense, and ever-changing engineering progress; drafting departments are being called on for faster, more accurate work. Costly expansion need not be the only answer. Read on the following pages how the Bruning Man's reasonably priced modernization program will more than pay for itself in greater production and lower costs.



modernize to make 50% more productive use of space with

drafting room furniture



Conventional Arrangement **Auto-Shift Arrangement**

1. Hamilton Auto-Shift Tables. You can put six modern Auto-Shift units where you now have four boards with separate reference d- Jnique design of Auto-Shift lets draftsman work on any part of the ., reach reference table and drawers without leaving his seat. Your draftsmen work faster and better with far less fatigue.

2. Hamilton "L" Contour Tables. The unique "L" shape of this combination board and desk unit provides new reference convenience, new personalized working space, new smartness of surroundings for modern draftsmen and engineers. They work faster, better, and with more pride in their work and surroundings.

3. Hamilton UnitSystem Files. You file drawings and records in units especially designed for them by size and frequency of use. Drawings are faster to file and find. UnitSystem's interlocking feature lets you combine exactly the units you need in higher stacks to save space and to expand filing efficiently and economically.

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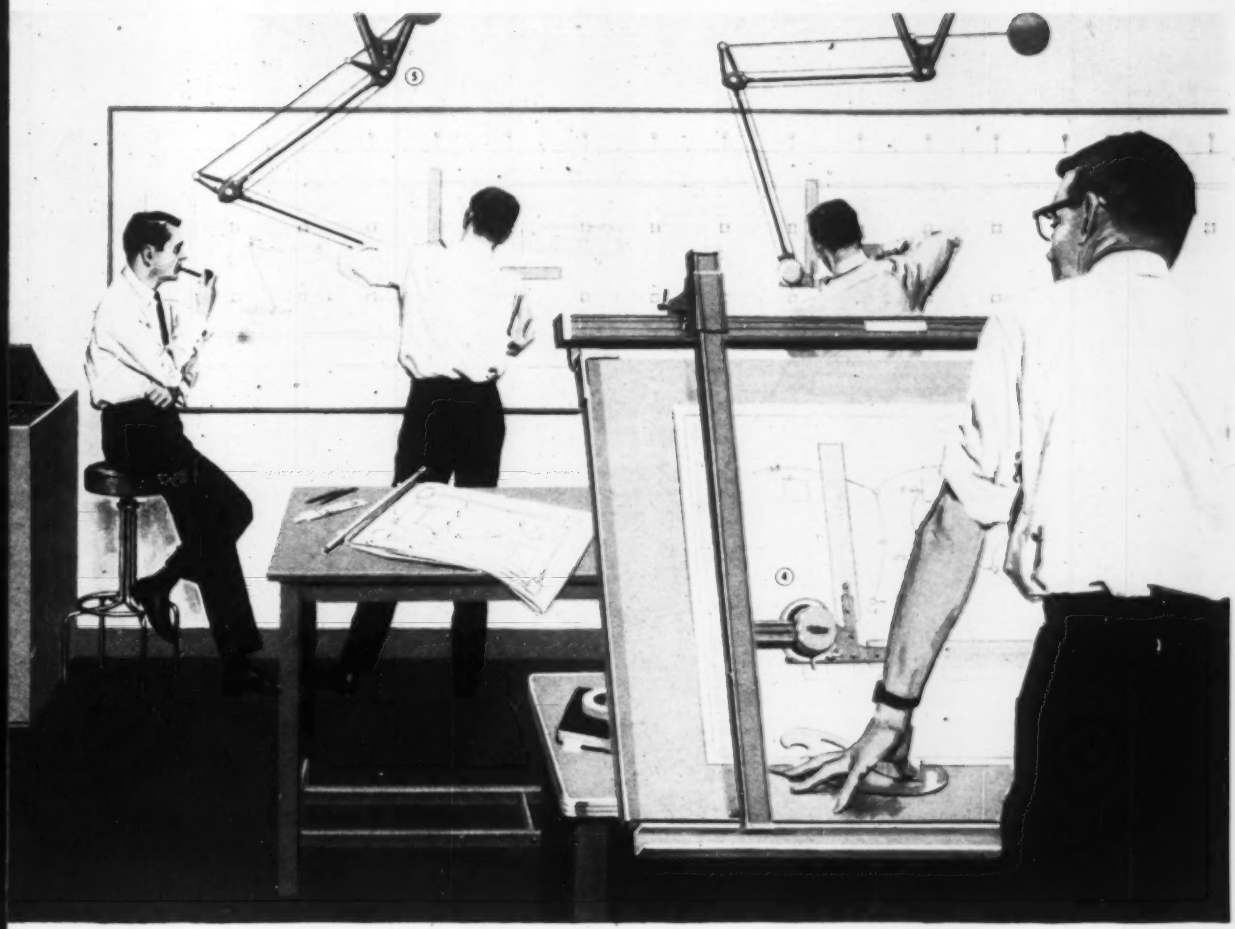

modernize to speed drafting up to 40% with

drafting machines

Over conventional equipment, modern Bruning drafters speed drafting up to 40% on most jobs . . . up to 50% on some structural drawings. They are far faster and easier to operate than any other drafting machine on the market.

4. All-New Neoglide Drafters. A complete departure from conventional drafting machine design, Bruning's new Neoglide drafters give the draftsman complete maneuverability on any board **at any angle.** Reinforced U-beam construction offers amazing rigidity, strength, and accuracy. Yet resistance-free movement of the counterweight and vertical beam provide free-and-easy "floating" action. No cables or belts to break, stretch, or sag. Touch-control protractor head gives automatic, pin-point angle selection at a touch of the control button.

5. Bruning Track Drafters. Here is the modern, space-saving way to turn out large drawings, faster and more accurately. Unsurpassed anywhere, Bruning track drafters offer automatic indexing, double veniers, and fast scale changes. Models available to provide vertical coverage up to 84" and unlimited horizontal coverage.

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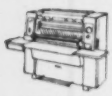
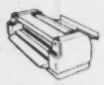


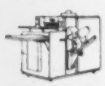
Model 675

Model 35

Model 250



Model 300



Copytron Microfilm Printer

Model 42

1. New Copyflex 675. Years ahead of any reproduction machine, Bruning's Model 675 offers a host of new time-and-work-saving advantages. These include a four-way tracing tray that adjusts to stack or permit fast removal of tracings . . . a feed band system that eliminates curling of tracings . . . enclosed easy-to-load feed rods for roll stock . . . unique system of vacuum ports in the feedboard that hold large sheets and roll stock in position . . . a split-shade lamp control that enables simultaneous insertion of different materials . . . and an electrically controlled push-button machine height adjustment. It offers a mechanical speed of up to 75 f. p. m. and a fast-printing 7,500 watt lamp variable to 5,000 watts, takes sheets and roll stock up to 42" wide.

2. Modern Copyflex 300. This unique, low-cost table top model offers a full 30-inch printing width, gives you professional prints in seconds. By supplementing your main reproduction center with strategically located 300's, you add new dimensions in convenience and economy to your department.

Copyflex machines are odorless, require no venting or plumbing. 8½ x 11" prints cost 1¼¢ each for materials.

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modernize to slash time of re-working drawings up to 90% with

intermediates

3. For design changes or re-working old drawings, modern Bruning intermediates can save up to 90% of the tracing usually required. The draftsman has a Copyflex intermediate (reproducible print) made of the original drawing. Unwanted portions can either be masked out in the printing operation or eradicated on the intermediate itself. New lines then can be added to the intermediate without the tedious, time-taking work of tracing those sections which do not require alteration.

Bruning versatile intermediates are also widely used to speed and simplify print distribution. Sent to distant points, intermediates can be used again and again to make needed prints or to incorporate changes without waiting for new prints from headquarters.

Bruning's complete line of intermediates include paper, matte film, clear film, and cloth.

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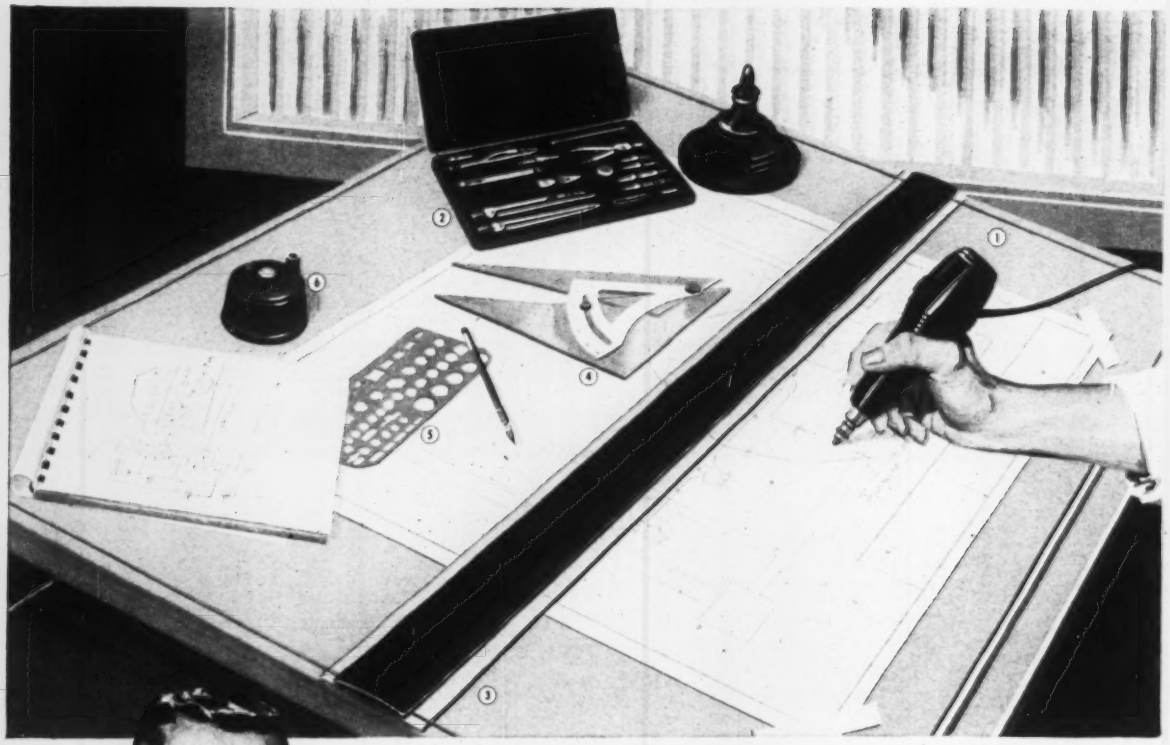

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(Continued from page 88)

N. J., Orange—CITY HALL—City, City Hall, constr. city hall, $650,000.

▲† N. M., Albuquerque—Test AND ENVIRONMENTAL INSTALLATIONS—Atomic Energy Comn., Albuquerque Operations Office, P. O. Box 5400, test and environmental installations, Sandia Base, Proj. 60-c-3, $1,000,000 (authorized).

▲† N. M., Los Alamos—HOUSING ALTERATIONS, etc.—Atomic Energy Comn., housing alterations, Proj. 60-k-3, $1,000,000 (authorized); materials storage vault, Proj. 60-d-2, $133,000 (authorized); high school addns., Proj. 60-k-1, $485,000 (authorized).

▲† N. Y., Brookhaven—ACCELERATOR, etc.—U. S. Atomic Energy Comn., 1901 Constitution Ave., N. W., Wash. 25, D. C., accelerator and reactor modification Proj. 60-g-2, $1,950,000 (authorized). CD 10/26/55.

▲ N. Y., New Dorp—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, plans by Albert W. Melniker & Kenneth W. Milnes, 55 Central Ave., Staten Island, New Dorp High School addns., modernization, $2,000,000. Muzzillo & Tizian, 202 E. 44th St., New York, Zone 17, mech. engrs. DiStasio & Van Buren, 136 Liberty St., New York, Zone 6, structural engrs.

▲ N. Y., New York—HOUSING—New York City Housing Auth., 29 Broadway, Zone 7, plans by Frederick Frost, 144 East 30th St., housing, in area between First Ave. and Franklin D. Roosevelt Dr. between E. 93rd and E. 95th Sts. $9,970,000. CD 4/28.

▲ O., Bucyrus—SCHOOL—North Robinson-Jefferson School Dist., $1,250,000 bond election Nov. 3, high school; $150,000 bond election Nov. 3, swimming pool at high school.

O., Burgoon—SCHOOL—Lakota School Dist., Rising Sun $838,000, bond election Nov. 3, Central High School $700,000.

▲ O., Canton—COUNTY JAIL—Comrs. Stark Co., Courthouse, 0.21 mill tax levy to be voted Nov. 3, county jail, $2,260,000. Firestone & Motter, 1412 Cleveland Ave. N.W., and Harry C. Frank, 203 Market St., archts. CD 1/22.

▲ O., Canton—COURT HOUSE—Comrs. Stark Co., Court House, 0.53 mill tax levy to be voted Nov. 3, court house, $5,630,000. Firestone & Motter, 1412 Cleveland Ave. N.W., and Harry C. Frank, 203 Market St. S., archts. CD 2/14/58.

▲ O., Canton—HOME FOR AGED—Comrs. Stark Co., Court House, 0.17 mill tax levy to be voted Nov. 3, home for aged, $1,750,000. Firestone & Motter, 1412 Cleveland Ave. N.W. and Harry C. Frank, 203 Market St. S., archts. CD 1/22.

▲ O., Dayton—SCHOOL—Mad River Twp. Bd. Educ., 1830 Harshman Rd., bond election Nov. 3, high school, $1,166,000.

▲ O., Dover—LIGHT PLANT—City, City Hall, municipal light plant expansion, incl. steam boiler, auxiliary equip. and boilerroom, $1,800,000. William C. Kammerer & Assocs., 1980 Euclid Ave., Cleveland, Zone 15, consult. engrs. CD 2/27.

O., Sherwood—SCHOOL—Bd. Educ., Central Local School Dist., bond election Nov. 3, high school, $980,000.

▲ O., Springfield—SCHOOLS—Northeastern Local School Dist., RD 6, Springfield, bond election Nov. 3 schools, $1,200,000.

O., Sugar Creek—SCHOOL—Garaway Local School Dist., bond election Nov. 3, school, $880,000.

▲ O., Van Wert—SCHOOLS—Bd. Educ., bond election Nov. 3, schools, $1,700,000. CD 11/10.

▲ O., Williamsport—SCHOOL—Westfall Local School Dist., bond election Nov. 3, high school, $1,395,000.

▲† Okla., Enid—HOUSING—U. S. Eng., Box 61, Tulsa, plans by Caudill, Rowlett & Scott, 1501 Classen Dr., Oklahoma City, 170 Capehart Housing units, Vance Air Force Base No. 2, $2,805,000. CD 4/27.

▲† Pa., Shippingport—REACTOR FACILITIES—U. S. Atomic Energy Comn., 1901 Constitution Ave. N. W., Wash. 25, D. C., alterations to Shippingport reactor facilities, Proj. 60-e-12, $5,000,000 (authorized).

▲† South Carolina—REACTOR AIR FILTERS, etc.—Atomic Energy Comn., 1901 Constitution Ave. N.W., Wash. 25, D. C., reactor air filters, Proj. 60-a-4 $5,000,000 (authorized); increased cooling water capacity, Proj. 60-b-2, $5,000,000 (authorized); modifications reactor disassembly basins, Proj. 60-a-7, $1,600,000 (authorized). Savannah River.

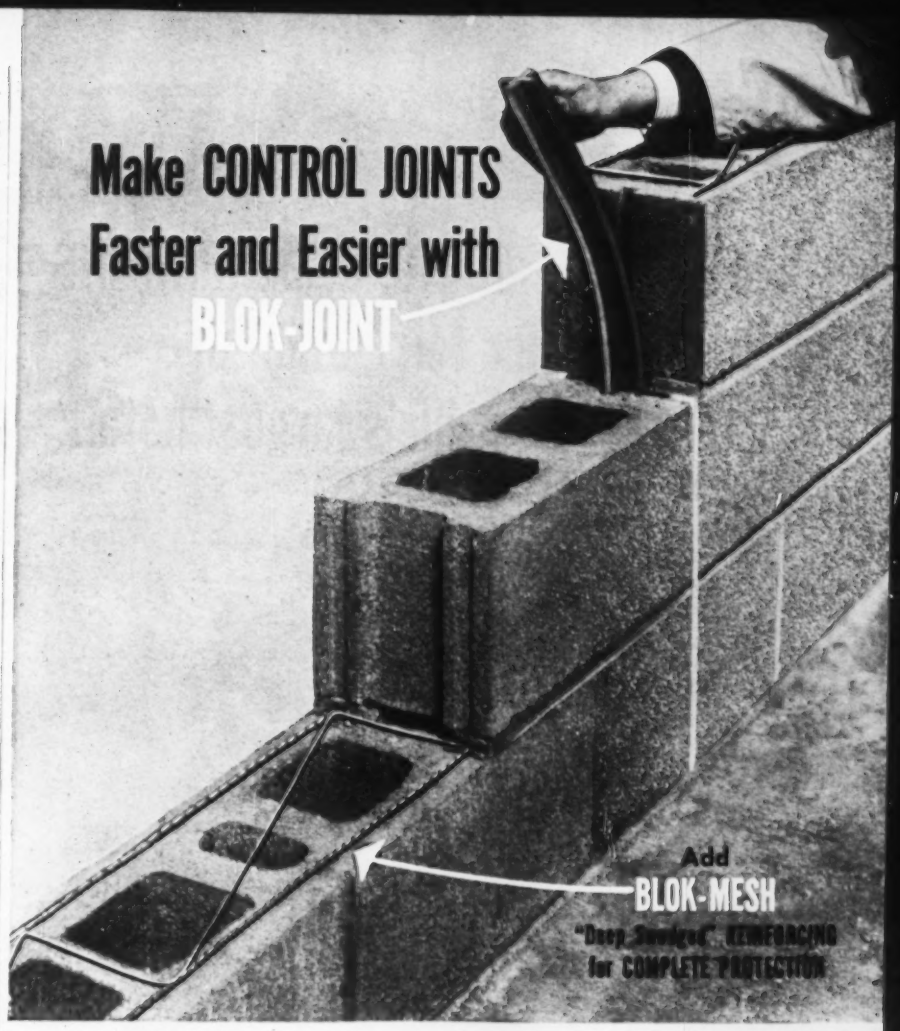
▲† Tenn., Oak Ridge—CENTRAL COMPUTING, etc.—Atomic Energy Comn., 1901 Constitution Ave. N.W., Wash. 25, D. C., central computing bldg., Proj. 60-a-3 $1,650,000 (authorized); transuranium laboratory, Proj. 60-g-3 $1,200,000 (authorized); 10 mev tandem Van de Graaff Accelerator, Proj. 60-g-5 $2,400,000 (authorized); radioisotope production area expan. and modifications, Proj. 60-j-1 $300,000 (authorized), for Oak Ridge National Laboratory. CD 9/12/58.

▲ Tex., Tyler—CIVIC CENTER—City, City Hall, civic center, incl. public library $1,000,000.

Utah, Cedar City—HOSPITAL—Bd. Comrs. Iron Co., Cedar City, plans by Garden & Rasmussen, 173 S. 2nd St., 1 story 60 bed hospital, $600,000.

▲ Wis., Milwaukee — STATE OFFICE — State Bldg. Comn., State Capitol, Madison, plans by Grellinger & Rose & Assocs., 757 N. Milwaukee St., state office bldg. $5,000,000. R. D. Culbertson, 2218 Kendall Ave., Madison, engr. CD 11/7.

▲ Ontario—GENERATING UNIT—Hydro-Electric Comn., 620 University Ave., Toronto, Zone 2, 300,000 kw. generating unit 3, (for 1961) 300,000 kw. generating unit 4, (for 1962) at Lakeview Generating Station, Toronto Twp. $10,000,000. CD 8/30/57.



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Engineers: Seelye, Stevenson, Value & Knecht, New York City
General Contractor: Daniel Construction Co., Jacksonville, Fla.

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COMMERCIAL BUILDINGS

▲ **Ala., Mobile**—HOUSING—Gulf Development Co., 1600 Fulton Rd., 500 home housing development in Navco Area $7,500,000.

Ariz., Flagstaff—SHOPPING CENTER—Shults Realty & Investment Co., 411 N. Central Ave., Phoenix, Flagstaff Plaza, Inc. Shopping Center, Fort Valley Road and N. Beaver St. $700,000.

▲ **Ariz., Tucson**—DEPARTMENT STORE—Levy's Dpt. Store, 111 E. Pennington, plans by Albert C. Martin & Assocs., 333 S. Beaudry St., Los Angeles, Calif., 2 story, 60,000 sq. ft. department store, East Bway. $2,000,000.

▲ **Calif., Palo Alto**—MEDICAL—Palo Alto Medical Clinic, c/o Clark, Stromquist, Potter & Ehrlich, archts., 3200 Hanover St., 3 story steel frame, glass Central Medical Bldg., $2,500,000.

▲ **Colo., Englewood**—OFFICE—Charles & Co., Charles F. Johnson, 3149 S. Broadway, plans by H. R. Braun, Englewood, 8 story, 105 x 200 ft. office, 3 stories below ground parking facilities, $3,000,000. CD 7/22.

▲ **Colo., Fort Collins**—COUNTRY CLUB—Owner, c/o J. Ott, Gen. Man. Aviation Country Club, Denver, plans by Bruno J. Celentano, 1339 Delaware, Denver, Holiday Country Club, 5 mi. west of Horsetooth Reservoir, $1,000,000.

Colo., Greeley—SHOPPING CENTER—Brentwood Park Development Co., c/o Berne, Muchow, Baume & Polivnick archts., 1225 Bannock, Denver, 1 story, 70,000 sq. ft. Brentwood Park Shopping Center, incl. 902 cars parking $750,000.

▲ **Colo., Lakewood**—AMUSEMENT AREA—Saul Davidson, 5235 South Gregg Court, Denver, amusement area, incl. 52 lane bowling alley, restaurant, roller rink, olympic size L-shaped swimming pool, $1,000,000.

Conn., East Lyme—MOTEL—Howard Johnson Motor Courts, 30 E. 50 St., New York, N. Y., 60 unit motel, Connecticut Tpk. and Route 161, Flanders, $750,000.

▲ **Conn., Manchester**—HOUSES—Frank R. Wood, 150 S. Lakewood Circle, plans by Arnold Lawrence, 571 Porter St., 180 houses, Keeney St. $1,800,000. CD 6/24.

▲ **Conn., New Haven**—SHOPPING CENTER—Leonard L. Farber Co., Inc., 342 Madison Ave., New York, N. Y., 120,000 sq. ft. "Amity Road Shopping Center" Amity Rd., $1,200,000.

▲ **Conn., Wallingford**—SHOWPLACE—Connecticut Performing Arts Foundation, Old Hartford Tpk., showplace, outdoor and indoor theatre. $4,000,000.

▲ **Fla., Tampa**—HOSPITAL—St. Joseph's Hospital, 7 Ave. and Morgan St., hospital, $4,000,000.

▲ **Hawaii, Honolulu**—APARTMENTS—Mr. & Mrs. Edwin Yee, 1609a Nobrega, Honolulu, 14 story, 104 unit apartments, $2,000,000.

▲ **Hawaii, Honolulu**—INSURANCE—Philippine American Life Insurance, Biship Bank Bldg., Honolulu, insurance bldg. $1,000,000.

▲ **Ill., Chicago**—HOSPITAL—University of Chicago, 5801 Ellis Ave., plans by Schmidt Garden & Erikson, 104 S. Michigan Ave., 6 story hospital, 58th St. and Ellis Ave.; Philip D. Armour Clinical Research Bldg. $3,000,000. Bids in 1960. CD 6/26.

▲ **Ind., Indianapolis**—HOTEL—General Outdoor Advertising Co., Inc., 511 Madison St., plans by C. Wilbur Foster & Assoc., 4741 E. Washington, 5 story, 192-room hotel, NE corner Meridian and 38th Sts. $1,500,000.

▲ **Neb., Omaha**—SHOPPING PLAZA—Wm. J. Lindsay (Spokesman) 637 Keeline Bldg., plans by George W. Dunn, 7609 Springfield Dr., 100,000 sq. ft. Ames Shopping Plaza, 56th and 60th Sts. and Ames and Fowler Aves. $1,000,000.

▲ **N. J., Edgewater**—APARTMENTS—Tidewater Reconstruction Corp., c/o Stanley Tsigounis, 336 Main St., Ridgefield Park, plans by Isadore Naftali, 312 High St., Newark, and Milton Klein, 206 Morris Ave., Springfield, three 20 story apartments, and two 10 story apartments, River Rd. $15,000,000.

▲ **N. J., Elizabeth**—APARTMENT—Paul Yampol, 4908 Beach Reservation, Brooklyn, N. Y., 9 story, 110-unit, apartment, North Broad St. $2,000,000.

▲ **N. J., Middlesex**—APARTMENT—Hidden Hills Bldg. & Developing Co., P.O. Box 239, Hazlet, 360-unit garden apartment, Harris Ave. $2,000,000.

N. Y., Central Islip—SCHOOL—St. John of God School, Carleton Ave., Central Islip, plans by La Farge, Knox & Murphy, archts.-consult. engrs., 215 E. 37th St., New York, Zone 16, school addns., alterations, $750,000. V. L. Falotico & Assocs., 26 Court St., Brooklyn, Zone 2, mech. engrs.

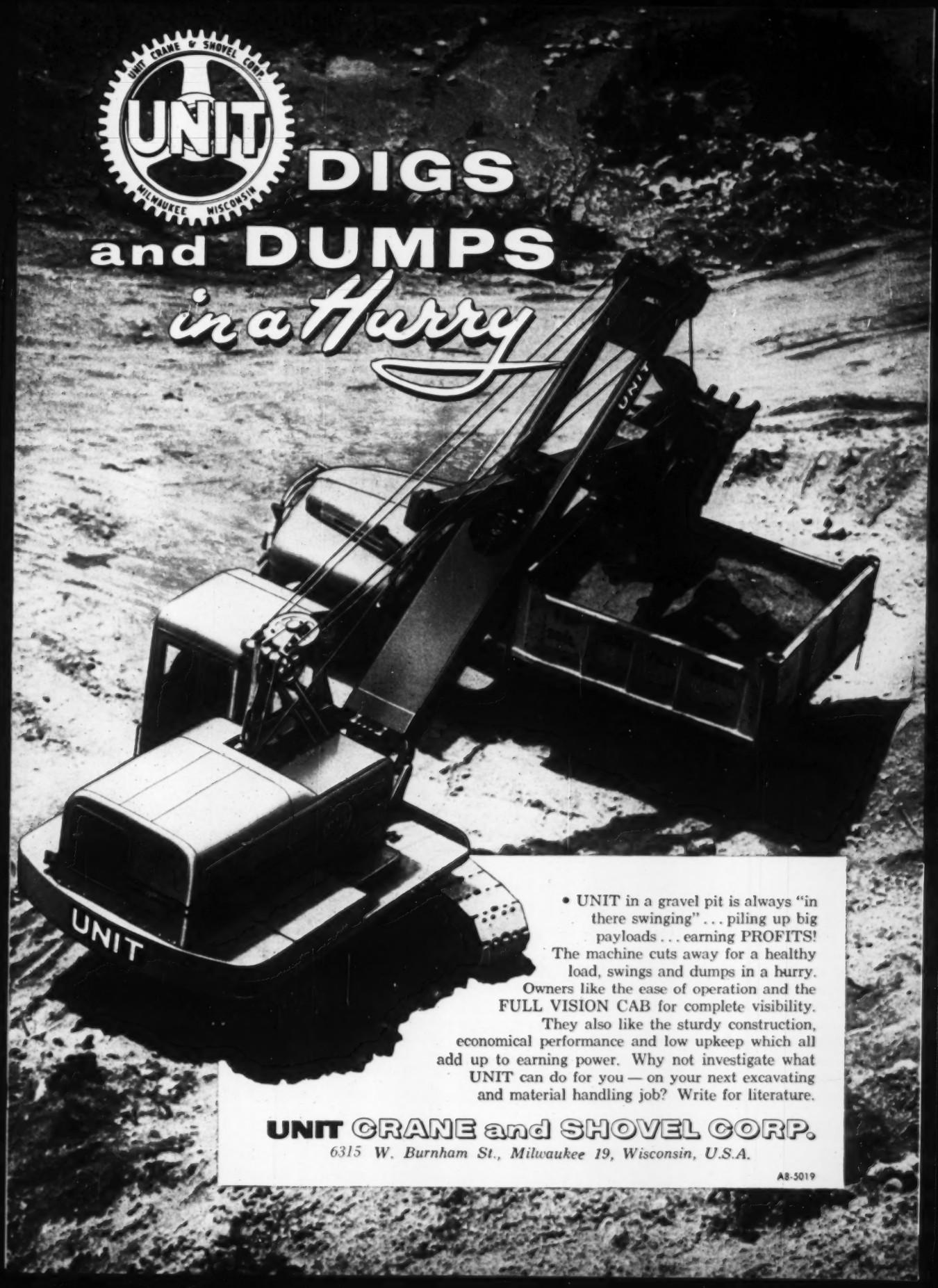
▲ **N. Y., New York**—HOTEL—Zeckendorf Hotels Corp., 383 Madison Ave., Zone 17, plans by John Harold Barry, c/o Webb & Knapp, Inc., 383 Madison Ave., Zone 17, 16 story Drake Hotel Annex, 440 Park Ave. $3,500,000. Jaros, Baum & Bolles, 730 3rd Ave., Zone 17, mechanical engrs. Seelye, Stevenson, Value & Knecht, 101 Park Ave., Zone 17, structural engrs.

▲ **N. Y., New York**—HOTEL—Hilton Hotels Corp., 301 Park Ave., Zone 22, Savoy Hilton Hotel Addn., 5th Ave. and W. 59th St. $1,000,000.

▲ **O. North Madison**—SHOPPING CENTER—CIRD, Inc., c/o Ronald E. Mitchell, Madison-on-the-Lake, North Ridge Plaza, 65-unit shopping center, North side Rte. 20, Bennett Rd. $7,000,000. Constr. in Fall.

▲ **Tex., Corpus Christi**—SHOPPING CENTER—H. E. Butt Grocery Co., Hy. 44, 190,000 sq. ft. masonry shopping center $2,000,000, shopping area hard pavement and parking center $100,000, site area earthwork (grading, filling, leveling, etc.) $65,000, sani-

(Continued on page 98)



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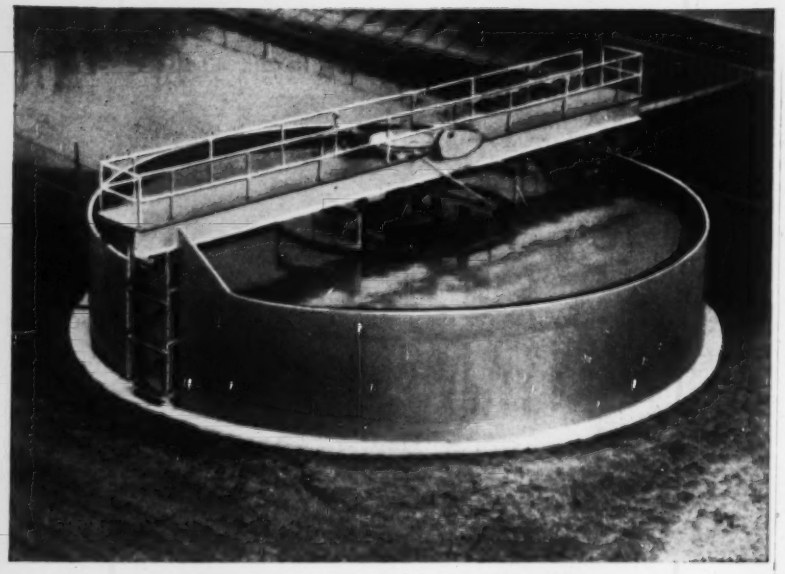

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(Continued from page 96)

tary-storm sewers $110,000, Kostroyz, between Gotilhar and Houston Sts.

Tex., Corpus Christi—SHOPPING CENTER—Parkdale Plaza, Shopping Center, Parkdale Office, 2 Parkdale Plaza, 90,000 sq. ft. masonry shopping center addn. $750,000.

Tex., Fort Worth—SCIENCE—Texas Wesleyan College Campus, plans by Wyatt C. Hedrick Co., 1200 T&P Bldg., masonry science bldg. $750,000.

▲ Tex., Fort Worth—RESIDENCES—Wedgwood Enterprises, 5320 Wedgmont Circle, 250 one story, brick veneer residences, Wedgwood Addn. $2,500,000. C. A. West, 109½ Main St., consult. engr. CD 12/8/54.

▲ Tex., Odessa—CLUB, etc.—Thunderbird Club, Inc., Black Bldg., plans by Peters & Fields, 216 E. 6th St., club $1,250,000, swimming pool $90,000, paved area and parking center $125,000, 36 hole golf course and 9 hole pitch and put, $150,000. CD 6/15.

▲ Va., Alexandria—TOWER APARTMENTS—S. M. I. Corp., Tower Bldg., Wash., D. C., 10 story, three or four Tower Apartments, Shirley Hy. Lincolnia Rd. near Duke St. Interchange. $16,000,000. Edward S. Holland, 120 W. Pitt St., consult. engr.

▲ Wis., Milwaukee—MEDICAL ARTS—Juneau Corp., c/o R. A. Sutherland, 704 E. Juneau Ave., Zone 2, 17 story, penthouse, medical arts, underground parking, $3,500,000.

▲ Wis., Neenah—HOSPITAL—Theda Clark Memorial Hospital, 215 Lincoln St., plans by Schmidt, Garden & Erickson, 104 S. Michigan Ave., Chicagago, Ill., 6 story, bsmnt. hospital addn. $2,500,000. CD 12/19/57.

▲ Ont., Kitchener—HOSPITAL—St. Mary's Hospital, Queensmount Crescent, plans by W. L. Somerville, McMurrich & Oxley, 191 Eglinton Ave. E., Toronto, 230 bed hospital extens. $3,000,000. CD 6/13/57.

INDUSTRIAL BUILDINGS

▲ Ala., Decatur—PLANT—Minnesota Mining & Mfg. Co., 900 Bush Ave., St. Paul, Minn., fluorochemicals mfg. plant. $4,500,000. C. P. Pesek, vice pres. in charge of engr.

▲ Ariz., Phoenix—MFG. PLANT—Fiebreboard Paper Products Corp., 3300 N. Central Ave., 250,000 sq. ft. shipping container mfg. plant. Over $1,000,000.

Calif., San Diego—PLANT—Electro Instruments, Inc., 3450 Aero Ct., plans by George Lykos, Spreckles Bldg., 2nd and Broadway, Zone 1, 60,000 sq. ft. electronics mfg. plant. $600,000.

Conn., New Britain—GARAGE—Southern New England Telephone Co., 227 Church St., New Haven, plans by Davis, Cochran & Miller, 29 Whitney Ave., New Haven, 1 story, masonry garage and maintenance bldg., Wooster St. $600,000.

▲ Fla., Tampa—BREWERY—Anheuser-Busch, Inc., 721 Pestalozzi St., St. Louis 18, Mo., 350,000 bbl. per year brewery addn. $5,000,000.

Ill., Mount Olive—PLANT—Young Spring Wire Corp., 9200 Russell between Owens and Westminster, Detroit, Mich., 1 story, 60,000 sq. ft. plant. $600,000.

▲ Ill., Wilmington—FACTORY—Personal Products Corp., 6401 W. 65th St., Chicago, plans by Ralph Stoetzel, 100 W. Monroe St., Chicago, Zone 3, 200,000 sq. ft. sanitary goods factory. $2,000,000.

▲ N. J., Woodbridge—PLANT—Heyden Newport Chemical Corp., 342 Madison Ave., New York, N. Y., plant, off Meadow Rd., Fords section. $3,000,000.

N. Y., Buffalo—PLANT—Gabreyel Lumber Co., 2525 Walden Ave., lumber, millwork, bldg. materials plant, storage, etc. $750,000.

O., Cairo—FACTORY—American Agricultural Chemical Co., Cairo, factory addn. State Rte. 11, 4 mi. north of here, $750,000.

▲ Wyoming—MILL—Vipont Mining Co., 600 Petroleum Club Bldg., Denver, Colo., 1,000 tons per day capacity gypsum mill, Wind River Indian Reservation between Riverton and Shoshoni. $10,000,000. Stearns-Rogers Manufacturing Co., 660 Bannock St., Denver, Colo., consult. engr.

Alta., Edmonton—FACTORY—Edmonton Paint & Glass Co. Ltd., Edmonton, factory on 8 acre site, 142nd St. and 121A Ave. $750,000.

▲ B. C., Burnaby—PLANT—Fraser Valley Milk Producers Assn., 400 Block E. 8th Ave., Vancouver, receiving, processing and milk distr. plant, 25 acre site at Sperling Ave. and Lougheed Hy. $3,500,000.

UNCLASSIFIED

▲ Arkansas—ELECTRIC TRANSMISSION LINE—Oklahoma Gas & Electric Co., 321 North Harvey St., Oklahoma City, Okla., 8.5 mi. 11 kw electric transmission line, substation and transformer station between Van Buren and Massard. $1,090,972.

▲ Conn., Westport—MARINA—Town, Town Hall, Marina Grey's Creek, $1,797,360 Goodkind & O'Dea 1214 Dixwell Ave., Hamden, consult. engrs.

▲ Kentucky—RURAL DISTRIBUTION LINES, etc.—Union Light, Heat & Power Co., 7th St., Covington, gas and electrical lines, substations $6,100,000. Constr. in 1959-60. CD 2/29/56.

▲ Mo., Cameron—GAS SYSTEM—City, City Hall, municipal gas sys. $1,120,000.

▲ Texas—COMPRESSOR STATION, etc.—Sinclair Pipeline Co., Petroleum Bldg., Houston, 1500 hp. compressor station, Joy, $450,000, 2750 hp. compressor station, Files, $750,000, 2750 hp. compressor station Willis $700,000. CD 11/16/55.

NOW the EUCLID "TWIN" Scraper has EVEN MORE POWER* and WORK-ABILITY!

*Now 563 total h.p.!

No other scraper gives you all the features you get in the TS-24 "Euc"

- 2 engines— 563 total h.p.
- 2 Torqmatic Drives
- No spin differentials
- All-wheel drive
- 32 yds. heaped (24 yds. struck)
- 27.00x33 tires (33.5x33 optional)

Euclid's TS-24 Scraper, with power increased to 563 h.p., now widens its lead in performance over every other scraper in the field. With a 336 h.p. engine in the tractor and 227 h.p. at the rear, this "Twin" is unsurpassed in productive capacity.

On job after job—small grading work to big yardage projects—the TS-24 Twin-Power "Euc" moves dirt at lower cost than other scrapers.

Its big power, big capacity and big performance has helped contractors, mines, quarries and industrial users to beat the pinch on profits.

Have a Euclid dealer show you how the "Twin" can bring a better return on investment . . . on your present or future work. He'll give you all the facts and can probably arrange a demonstration for you.

EUCLID Division of General Motors, Cleveland 17, Ohio

Watch for Euclid's Big 3 Power Parade in your area!

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FOR MOVING EARTH, ROCK, COAL AND ORE

BEARING BRIEFINGS

One in a series of technical reports by Bower

ROLLER GUIDANCE– VITAL FACTOR IN BEARING LIFE

Roller guidance has been established by the Anti-Friction Bearing Manufacturers Association as a major rating factor for roller bearings. There is a direct relationship between this factor and the life and capacity of a cylindrical roller bearing under load.

Figure 1 illustrates the results of a loose fit between a roller and the guiding ribs of the raceway. Because of lack of guidance by the ribs, the roller is free to skew and skid under load. Such a condition invariably leads to early bearing failure.

To achieve close roller fit and proper roller guidance, Bower precision grinds each bearing race on specially designed centerless grinders. In this operation, Bower positions the integral raceway ribs *from the theoretical centerline of the bearing*. This method produces bearings with high dimensional accuracy and perfect symmetry.

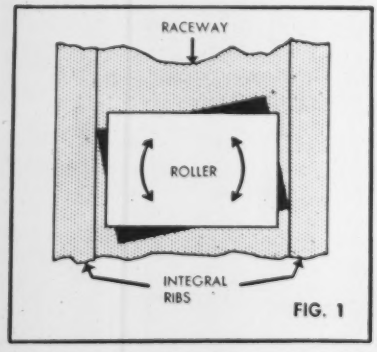
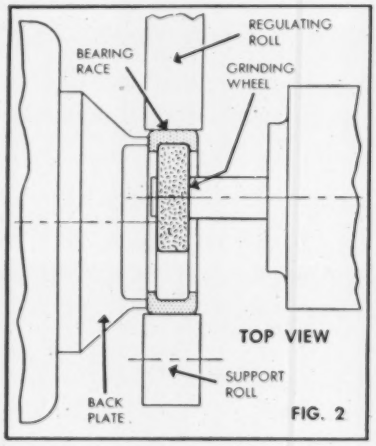
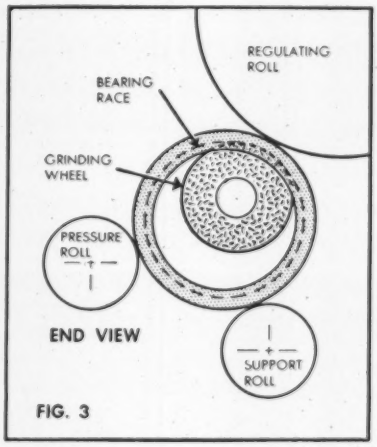


Fig. 1. Loose fit in raceway means poor roller guidance. Roller can skew and skid under load.

In addition, the close tolerances held in grinding the roller track and integral guiding ribs give Bower cylindrical roller bearings the ability to *take thrust in any direction*. A Bower cylindrical roller bearing has thrust capacity of from 10-15% of its rated radial capacity!



Figures 2 and 3 diagram the centerless grinding method used to finish Bower raceways. Use of this technique assures not only optimum roller guidance and maximum bearing life, but also virtually eliminates bearing runout. BEARING SYMMETRY WHICH RESULTS FROM THIS TECHNIQUE PERMITS ACCURATE SHAFT LOCATION REGARDLESS OF HOW THE OUTER RACE AND ROLLER ASSEMBLY ARE INSTALLED. IT COMPLETELY ELIMINATES THE POSSIBILITY OF IMPROPER INSTALLATION.



★ ★ ★ ★

Whatever your bearing needs, we suggest you consider the advantages of Bower bearings. Where product design calls for tapered or cylindrical roller bearings or journal roller assemblies, Bower can provide them in a full range of types and sizes. Bower engineers are always available, should you desire assistance or advice on bearing applications.

BOWER ROLLER BEARINGS

BOWER ROLLER BEARING DIVISION – FEDERAL-MOGUL-BOWER BEARINGS, INC., DETROIT 14, MICHIGAN

Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
August 24 Connecticut
STREETS AND ROADS
August 24 Connecticut

Mass., Amherst—BA 8/21—Commonwealth of Mass., Trustees University of Mass., c/o Div. Bldg. Constr., 38 Chauncy St., Boston, U-702-Contr. 14, water, sewer and drainage addns. for University. $580,000. Plans deposit $40. Whitman & Howard, Inc., 89 Broad St., Boston, engr. CD 3/30.

BUILDINGS—BA

N. H., Farmington—SCHOOL—BA 8/21—Town, Bldg., Comm., Memorial Dr., Elementary School, Farmington, high school addn. to Memorial Dr. Elementary School. $400,000. Plans deposit $50. Irving W. Hersey Assoc., Town Hall Bldg., Durham, archts. CD 3/5.

HEAVY CONSTRUCTION—LB & CA

▲ MASSACHUSETTS—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,
Bayer & Mingolla Constr. Co., Inc., P.O. Box 993, Worcester, Mass., CA $1,809,757, est. $2,197,668, hy. and bridge constr., Interstate Rte. 495, FAP I-495-6 (6) 45, Littleton. Bids July 14, awarded July 30. CD 7/16, under LB.

▲ MASSACHUSETTS—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston. Bids opened 8/4,
Suburban Excavators, Inc., 4 New Salem St., Wakefield, Mass., LB $2,343,349, est. $2,881,398, state hy. and bridge International Rte. 495, FA Proj. I-495-6 (17) 60 Westford. CD 7/22.

▲ CONNECTICUT—State Hy. Comr., 170 Douglas St., Hartford,
cancelled bids to have been opened Aug. 3, Proj. 34-103, 3,619 lin. ft. incl. 5 bridges on relocation Rte. US 6, Federal Aid Proj. I-84-1 (4) 3, Danbury, $2,000,000; Proj. 34-105, c. conc. pavement 835 lin. ft. incl. 3 bridges on relocation Rte. US 7, Federal Aid Proj. F 30-8, Danbury. CD 7/15.

BUILDINGS—LB & CA

F. W. Cunningham & Sons, 181 State St., Portland, Me., CA Approx. $500,000, DORMITORY (Standish Neck), NORTH WINDHAM, ME. St. Joseph's College, North Windham, Me. Alonzo J. Harriman, Inc., 292 Court St., Auburn, Me., archts. CD 6/15.

Poorvu Constr. Co., Inc., 192 Worcester St., Wellesley, Mass., LB $506,360, est. $500,000, HIGH SCHOOL addn., alterations, BEDFORD, MASS. Town Supt. Schools, High School Bldg., Bedford, Mass. Bids July 30. CD 6/23.

▲ The Foundation Co., 39 Broadway, New York, N. Y. and 44 School St., Boston, Mass., CA Est. $15,000,000, UNDERGROUND PARKING GARAGE, BOSTON, MASS. Commonwealth of Mass., Parking Auth., 44 School St., Boston, Mass. Welton Becket Assoc., 5657 Wilshire Blvd., Los Angeles, Calif., archts.-engrs.

George B. H. Macomber Co., 25 Fordham Rd., Boston, Mass., CA Est. $750,000, SOCIAL SCIENCE BLDG., Campus, WALTHAM, MASS. Brandeis University, 415 South St., Waltham, Mass. Bids July 23. CD 7/10.

▲ R. R. Galbert, Lovely St., Avon, Conn., Owner Builds, $1,056,000, 44 HOUSES, Parkview Acres, Lovely St., AVON, CONN. Merton Hodge, 38 S. Main St., Unionville, Conn., engr. CD 6/18.

Morris Haftel, Wadsworth St., Middletown, Conn., Owner Builds, $620,000, 62 HOUSES, Ridgewood Rd., Westfield, MIDDLETOWN, CONN. CD 7/1.

Whitney, Inc., 750 Main St., Hartford, Conn., Owner Builds, $440,000, 8 unit GARDEN APARTMENT, 511-521 Prospect St., NEW HAVEN, CONN. Irving Rutherford, 301 Farmington Ave., Hartford, Conn., archt.

Tomlinson & Hawley, 472 North Ave., Bridgeport, Conn., CA $400,000, CHURCH, Bonnie View Dr., TRUMBULL, CONN. Church of Jesus Christ of Latter Day Saints, 511 Clinton Ave., Bridgeport, Conn. Bids June 24, awarded July 30. CD 6/16.

▲ Bossert Constr. Corp., 377 Main Ave., Norwalk, Conn., Owner Builds, $1,250,000, 50 HOUSES, Birch Rd., WESTPORT, CONN. CD 6/24.

Philip S. Tully, Silverbrook Rd., Westport, Conn., Owner Builds, $400,000, 40 HOMES, WESTPORT, CONN. CD 6/24.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
STREETS AND ROADS
August 19 New Jersey September 10 New York

BUILDINGS—BA

▲ Del., Stanton—SCHOOL—BA 8/20—Stanton School Dist., Lora Little Elementary School. $1,000,000. Plans deposit $50. Thomas M. Donahue, Marshallton, archt. CD 3/13.

▲ N. J., Eatontown—SCHOOL—BA 8/25—Bd. Educ., Monmouth Regional High School, Tinton Falls School, New Shrewsbury, high school, north Tinton Ave., New Shrewsbury. $1,625,000. Plans deposit $50. Extended date. Norman J. Wiedersum & Frederic P. Wiedersum, 238 West State St., Trenton, engrs. CD 7/6.

HEAVY CONSTRUCTION—LB & CA

R. L. Vogel, 3781 S. Park Ave., Buffalo, N. Y., CA $975,833, 25,000 ft. 42 in. line from 18-mile Creek to Sturgeon Point, BUFFALO, N. Y. Erie Co. Water Auth., 338 Ellicott Sq. Bldg., Buffalo 3, N. Y. Bids July 9. CD 7/15, under LB.

▲ George Tripp, Inc., 3260 Elizabeth Lake Rd., Pontiac, Mich., LB $3,899,514, Section D-25 mi. 8-to-24-in sanitary sewers for Gates-Chili-Ogden Sewer District ROCHESTER, N. Y. Monroe County Sewer Agency, 406 Terminal Bldg., 65 Broad St., Rochester, N. Y. Bids July 16. CD 6/25.

NEW JERSEY—State Hy. Dpt., 1035 Parkway Ave., Trenton,
Samuel Braen's Sons, 662 Goffle Rd., Hawthorne, N. J., CA $831,651, (6 bidders), wid'n., resurf. 3.818 mi. Rte. 10, Sect. 4A, and constr. turnarounds from Livingston Traffic Circle to Whippany-Troy Hills Rd., Morris and Essex Counties. Bids July 21, awarded July 29. CD 7/24, under LB.

▲ NEW JERSEY—State Hy. Dpt., 1035 Parkway Ave., Trenton,
Brann & Stuart Co., 448 Whitehead Rd., Trenton, N. J., CA $1,260,581, (9 bidders), dualization 5.063 mi. U.S. Rte. 322, Sect. 1, from Weymouth Rd. to Rte. 50, Atlantic Co. Bids July 9, awarded July 22. CD 7/13, under LB.

▲ NEW JERSEY—Comr. State Hy. Dpt., State Hy. Office Bldg., 1035 Parkway Ave., Trenton,
Geo. M. Brewster & Son, Inc., 175 W. Fort Lee Rd., Bogota, N. J., CA $4,474,566, grading, paving and bridges 4.075 mi. Rte. 129 Freeway, Sect. 1A, from Delaware River bridge to Scotch Rd., Ewing and Hopewell Twps., Mercer Co. Bids July 1, awarded July 29. CD 7/6, under LB.

▲ NEW JERSEY—State Hy. Dpt., 1035 Parkway Ave., Trenton,
Gaskill Constr. Co., Inc., Hartford Rd., Riverside, N. J., CA $1,682,748, (11 bidders), dualization 5.294 mi. Rte. 38, Sects. 1A and 2A, from Church Rd. to Marter Ave. in Delaware, Maple Shade, Moorestown and Mount Laurel Twps., Camden and Burlington Counties. Bids July 8, awarded July 22. CD 7/10, under LB.

▲ NEW JERSEY—State Hy. Dpt., 1035 Parkway Ave., Trenton. Bids opened 7/31,
Yonkers Contrg. Co., 969 Midland Ave., Yonkers, N. Y., LB $5,333,903, 2 mi. section, Interstate Rte. 287 between Weston Canal Rd., near South Bound Brook, Bridgewater Twp., Somerset Co. CD 7/2.

▲ PENNSYLVANIA—Pa. Hy. & Bridge Auth., 506 North Office Bldg., Harrisburg. Bids opened 7/31,
Latrobe Road Constr. Co., Box 150, Latrobe, Pa., LB $1,706,168, (3 bidders), 21,174 ft. divided hy., c. conc. 22 ft. wide each side earth divisor; 2 bridges, T. R. 30, Unity Twp., Westmoreland Co. CD 6/30.
MARYLAND—State Rds. Comm., 108 E. Lexington St., Baltimore, Zone 2,
Henry C. Eastburn & Son, Chestnut Hill and Marrow Rd., Newark, Del., CA $617,500, grading, drainage, wid'n., surf., 4.066 mi. Rte. 276 Port Deposit to Kelly Rd., incl. 2 box culverts, CE 404-1-220. Cecil Co. Bids Feb. 10. CD 2/16, under LB.

BUILDINGS—LB & CA

▲ Planet Constr. Corp., 11 W. 42nd St., New York 36, N. Y., CA $2,472,000, general contract PUBLIC SCHOOL 296, Eldert and Covert Sts., BROOKLYN, N. Y. Supt. Shcool Bldgs., Bureau Constr. 4th Fl., 42-15 Crescent St., Long Island City, N. Y. Bids July 7. CD 7/9, under LB.

▲ Clement S. Crystal, Inc., 701 7th Ave., New York, N. Y., CA Est. $20,000,000, 35 story, 400,000 sq. ft. OFFICE, STORES and BANK BLDG., 5th Ave. and E. 60th St., 785-5th Ave., NEW YORK, N. Y. Herman Philips & Assocs., c/o H. I. Feldman, archt., 415 Lexington Ave., New York, N. Y.

Mars Assoc., Inc & Normel Constr. Corp., 271 Church St., New York 13, N. Y., CA $747,000, general contract modernization and addn. PUBLIC SCHOOL 139, Wetherole St. and 63rd Dr., Queens Boro, REGO PARK, N. Y. Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City 1, N. Y. Bids July 16. CD 7/21, under LB.

▲ Vincent J. Smith, Inc., Johnson City, N. Y., CA $1,325,100, general contract, F. Ware Clary JUNIOR HIGH SCHOOL, SYRACUSE, N. Y. Bd. Educ., 400 W. Genesee St., Syracuse, N. Y. Bids July 17. CD 7/9.

Gramercy Constr. Corp., 114 Liberty St., New York N. Y., CA $907,882, general contract CONVENTION HALL improvs., ATLANTIC CITY, N. J., Bd. City Comrs., Dpt. P. Wks., City Hall, Atlantic City, N.J. Bids July 16, awarded July 30. CD 7/29, under LB.

Moraca Constr. Co., 622 Penn St., Camden, N.J., CA $814,000, general contract JUNIOR-SENIOR HIGH SCHOOL, GLOUCESTER, N. J. Bd. Educ., Gloucester, N. J. Bids July 16. CD 7/29, under LB.

Ovolia Constr. Co., 196 Elmount Ave., Paterson, N. J., CA $450,000, 35,000 sq. ft. SHOPPING CENTER, Kiel Ave., KINNELON, N. J. Galesi Realty Co., Broadway, Paterson, N. J. Bernard Hersh, 12-45 River Rd., Fair Lawn, N. J., archt.

▲ Massett Bldg. Co., 212 N. Georgia Ave., Atlantic City, N. J., CA $1,117,818, general contract REGIONAL HIGH SCHOOL, MAY'S LANDING, N. J. Greater Egg Harbor Regional High School Bd., Mays Landing, N. J. Bids July 13. CD 7/29, under LB.

▲ Town, Town Hall, Montclair, N. J., rejected bids July 15. HIGH SCHOOL, MONTCLAIR, N. J. LB $2,080,000. CD 7/22, under LB.

▲ A. A. LaFountain, Inc., 161 Beach St., Hackensack, N. J., CA $1,217,726, est. $2,173,000, HIGH SCHOOL, Madison Twp., OLD BRIDGE, N. J. Bd. Educ., Madison Twp., Old Bridge, N. J. CD 7/28, under LB.

▲ John McShain, Inc., 1750 No. Olden Ave., Trenton, N. J., LB Est. $1,500,000, (6 bidders) DORMITORIES, PRINCETON, N. J. St. Joseph's College, Lake Rd., Aqueduct, Princeton, N. J. Bids July 27. CD 6/30.

Hillwood Manor, Inc., 210 Nancy Lane, Trenton, N. J., Separate Contracts, $400,000, RESIDENTIAL DEVELOPMENT, Nancy Lane, etc., TRENTON, N. J. F. B. Spiezle, 11 N. Willow St., Trenton, N. J., archt.

Max Chipin & Sons, 6301 Crittenden St., Phila., Pa., Separate Contracts, $420,000, RESIDENTIAL DEVELOPMENT, Church Rd., etc., ELKINS PARK, PA.

Linden Homes, Inc., 46th and Pine Sts., Phila., Pa., Separate Contracts, $425,000, RESIDENTIAL DEVELOPMENT, Linden St., etc., PHILA., PA. Lewis J. Cowan, 1505 Pine St., Phila., Pa., archt.

George Martin, 4842 Georgia Ave. N. W., Wash., D. C., LB $540,000, SUPERMARKET for Shopping Center, New Hampshire Ave. and East West Highway, TAKOMA PARK, MD. Greenbelt Consumers Services, Inc., Greenbelt, Md. Hugh Johnson Assoc., Inc., 2000 P. St. N. W., Wash., D. C., archts. CD 6/14/57.

Poplar Constr. Co., 1223 Cathedral St., Baltimore 1, Md., Owner Builds, $620,000, 62 brick HOUSES, Fordham Development, Elton Ave., near TOWSON, MD.

Consolidated Engineering Co., Inc., 20 E. Franklin St., Baltimore, Md. CA Est. $400,000, 3 story CLASSROOM and REFECTORY, 4400 Mass. Ave. N. W., WASH., D. C. Wesley Theological Seminary, 4400 Mass. Ave. N.W., Wash., D. C. A. Hensel Fink, 1701 Arch St., Phila., Pa., archt.

▲ Fairmount Steel Corp., 1229 Mt. Royal Ave., Baltimore, Md., Owner Builds, $3,700,000, APARTMENT, Valley Ave., Varney St. and Wheeler Rd. S.E., WASH., D. C. Milton Schwartz, 1556 Connecticut Ave. N.W., Wash., D. C., archt. Henry Dollar & Assoc., 2000 K St. N.W., Wash., D. C., engrs.

▲ R. M. Shoemaker Co., 245 S. 24th St., Phila., Pa., CA $1,250,000, PROCESS BLDG., UTILITY BLDG., BOILER PLANT, DOVER, DEL. International Latex Corp., Dover, Del. A. H. Matts, Fort Myers, Fla., archt. Bids July 20. CD 7/21.

Dundee, Inc., 214 5th Ave., Wilmington, Del., CA Est. $400,000, JEWISH HOME FOR THE AGED, WILMINGTON, DEL. Jewish Federation of Delaware, 308 Irving Dr., Wilmington, Del. Marton E. Bleich, 521 Delaware Ave., Wilmington, Del., archt. CD 7/24/58.

SOUTH

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
STREETS AND ROADS
August 19 Louisiana August 25 Florida

Ala., Albertville—BA 8/25—City, City Hall, sewage treatment plant, outfall sewers. $500,000. Plans deposit $50. J. B. Converse & Co., Inc., 508 Dauphin St., Mobile, engr. CD 5/13.

Ga., Marietta—BA 8/25—City, City Hall, Eastside sewage treatment plant, outfall lines, pumping station, etc. $825,000. Plans deposit $30. Merritt & Walker, 410 Roswell St., engrs. CD 11/3.

BUILDINGS—BA

Ga., Augusta—LIBRARY—BA 8/21—Bd. Comrs. Richmond Co., 116 8th St., library. $625,000. Plans deposit $100. Eve & Stulb, Masonic Bldg., archts. CD 7/7.

BUILDINGS—SLC

N. C., Yadkinville—HOSPITAL—Lula Conrad Hoots Memorial Hospital, soon lets contract hospital addn. $450,000. Walter Hook & Assocs., 303½ W. 4th St., Charlotte, archts.

▲ Va., Falls Church—PLANT—Melpar, Inc., 3800 Arlington Blvd., soon lets contract 3 story plant addn. $2,000,000. Perry Duncan, 121 E. 54th St., New York, N. Y. archt. Bids July 8 rejected. CD 6/23.

HEAVY CONSTRUCTION—LB & CA

▲ Markowitz Bros., Inc., 5600 NE 4th Ave., Miami, Fla., CA $1,319,818, pipe line for jet fuel transfer from Port Everglades to Homestead Air Force Base, Broward and Dade Counties, FLORIDA. Florida Pipeline and Storage Co., Inc., 1125 17th St. N.W., Wash., D. C. CD 6/23, under LB.

▲† Kaiser Steel Corp., 612 S. Flower St., Los Angeles, Calif., CA $4,898,999, 305 ft. self-propelled tower for Saturn Missile, with shops, controls, elevators and testing equipment, Cape Canaveral, Patrick Air Force Base, COCOA, FLA. U. S. Eng., 575 Riverside Ave., Jacksonville, Fla. Maurice H. Connell & Assocs., P. O. Box 3526, Riverside Station, Miami, Fla., archts.-engrs. CD 6/10.

Intercounty Constr. Co., 211 N. Dixie Hy., Wilton Manors, Fla., LB $431,051, Proj. 764, storm drain-

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age, FORT LAUDERDALE, FLA. City, City Hall, Fort Lauderdale, Fla. Bids July 20. CD 7/14.

H. E. Wolfe Constr. Co., P. O. Box 1361, St. Augustine, Fla., LB **$402,956**, expressway roadwork, State and Union St., between Lee and Main Sts.; LB **$305,498**, storm drainage sys., Clay and Orange Sts. from Union St., JACKSONVILLE, FLA. Jacksonville Expressway Auth., 1022 Miami Rd., Jacksonville, Fla. Bids July 28. CD 7/20.

Ambrosius Industries, Inc., 2791 S. Floyd, Louisville, Ky., CA **$783,238**, sanitary sewer imprvs., Section 4, PINELLAS PARK, FLA. City, City Hall, Pinellas Park, Fla. Awarded July 21. CD 7/8, under LB.

▲ **Croft-Mullins Electric Co. & Gulf Electric Constr. Co.**, Crestview, Fla., LB **$1,155,000**, electrical distribution sys. addn., TALLAHASSEE, FLA. City, City Hall, Tallahassee, Fla. Bids July 24. CD 7/13.

Cone Bros. Co., Inc., P.O. Box 1259, Tampa, Fla., LB **$634,758**, runway extension, Tampa International Airport, TAMPA, FLA. Hillsborough Co. Aviation Auth., International Airport, Tampa, Fla. Bids July 28. CD 6/20.

ALABAMA—State Hy. Dpt., Montgomery, rejected bids July 17, grading, draining, pavement and culvert 0.455 mi. US 80 at Three Mile Branch, Montgomery Co. LB **$417,306**. Will re-advertise. CD 7/27, under LB.

ALABAMA—State Hy. Dpt., Montgomery,
R. B. Tylor Co., 1446 Levering, Louisville, Ky., CA **$884,993**, strengthen and renovate 6.51 mi. 4-lane highway on Southern Bypass, Montgomery Co. Bids July 17. CD 7/27, under LB.

† **Sam Finley, Inc.**, 292 North Ave. N.W., Atlanta, Ga., CA Lot 1, upper bank paving on banks Mississippi River between Cessions, Mississippi (Mile 611 AHP) and Huntington Point, Mississippi (Mile 547 AHP) CIVENG-40-041-59-155, MISSISSIPPI and ARKANSAS. U. S. Eng., P.O. Box 97, Memphis, Zone 1, Tenn. Total cost $550,050. Bids July 7. CD 6/3;
Patton-Tully Transportation Co., 1242 N. 2, Memphis, Tenn., CA Lot 11, upper bank paving on banks Mississippi River (Mississippi and Arkansas).

Forcum-Lannom, Inc., Dyersburg, Tenn., CA **$769,122**, sanitary sewer imprvs. (primary sewage treatment plant) Section 2, MURFREESBORO, TENN. City, City Hall, Murfreesboro, Tenn. Bids July 21. CD 7/2;
McCullough Contg. Co., P.O. Box 473, Murfreesboro, Tenn., CA **$181,792**, sanitary sewer imprvs. (outfall sewers) Section 1. (Murfreesboro, Tenn.).

Preston W. Carroll, P.O. Box 158, Clifton, Tenn., CA **$637,212**, sewage treatment plant, lines, WINCHESTER, TENN. City, City Hall, Winchester, Tenn. Bids July 23. CD 7/13.

BUILDINGS—LB & CA

W. G. Cox, 741 Johnson St., Raleigh, N. C., Separate Contracts, **$550,000**, 50 RESIDENCES, Lake Benson Subdivision, GARNER, N. C.

▲ **Kirkman & Koury, Inc.**, 205 N. Greene St., Greensboro, N. C., Day Labor, **$3,000,000**, 300 RESIDENCES between Benbow Rd. and O. Henry Blvd., GREENSBORO, N. C.

▲ **Wachovia Bldg. Co.**, 705 Georgetown Rd., Raleigh, N. C., Day Labor, **$1,500,000**, 126 RESIDENCES, Stratford Park Subdivision, RALEIGH, N. C.

Castle Heights Co., 705 Georgetown Rd., Raleigh, N. C., Day Labor, **$450,000**, 54 RESIDENCES, WINSTON-SALEM, N. C.

▲ **Fowler-Jones Constr. Co.**, 10 32nd St., Winston-Salem, N. C., CA Est. **$12,000,000** (with equip.) 635,000 sq. ft. brick, concrete block, steel HOSIERY MILL, air-conditioning, WINSTON-SALEM, N. C. Hanes Hosiery Mills Co., 1325 Ivy Ave. N.E., Winston-Salem, N. C. Lockwood Greene Engineers, Inc., Montgomery Bldg., Spartanburg, S. C., archt.

J. N. Browder Jr., Dotham Rd., Columbia, S. C., Separate Contracts, **$500,000**, 45 RESIDENCES, COLUMBIA, S. C.

J. Louis Moseley, 1717 Gervais St., Columbia, S. C., Separate Contracts, **$405,000**, 27 RESIDENCES, Meadorfield Subdivision, COLUMBIA, S. C.

E. D. Sauls & Co., 4060 Beltline Blvd., Columbia, S. C. Separate Contracts, **$500,000**, 50 RESIDENCES, Arbor Hills Subdivision, COLUMBIA, S. C.

C. L. Hughes Constr. Co., P.O. Box 579, Cayce, S. C., Day Labor, **$600,000**, 41 RESIDENCES, Platt Springs Rd., WEST COLUMBIA, S. C.

Mathis Constr. Co., 1529 Lumpkin Rd., Athens, Ga., CA Est. **$500,000**, BOWLING CENTER, ATHENS, GA. M. & C. Enterprises, c/o contractor.

▲ **Hellrung Constr. Co., Inc.**, 28 12th St. N.W., Atlanta, Ga., CA **$1,663,100**, HIGHVIEW NURSING HOME, ATLANTA, GA. Fulton Co. Bd. Comm., 165 Central Ave. S.W., Atlanta, Ga. Bids July 1. CD 7/15, under LB.

Bickerstaff Constr. Co., 3250 Wood Valley Rd. N.E., Atlanta, Ga., LB **$170,381**, WAREHOUSE, ATLANTA, GA. Georgia-Pacific Corp., 3121 Maple Dr. N.E., Atlanta, Ga. Bids July 28. CD 7/21.

Ray M. Wright, 1307 2 Ave., Columbus, Ga., Day Labor, **$400,000**, 22 RESIDENCES, Hilton Park Subdivision, COLUMBUS, GA.

T. L. Kikef, 923 Brown St., Dalton, Ga., LB **$837,713**, COURT HOUSE, DALTON, GA., Whitfield Co. Bd. Comm., Court House, Dalton, Ga. Bids July 29. CD 6/23.

Goings Constr. Co., 658 Hemphill Ave. N.E., Atlanta, Ga., LB Est. **$450,000**, BOWLING CENTER, DECATUR.

(Continued on page 104)

Blaw-Knox Concrete Paving spread used by McGeorge Contracting Company lays the first 5-inch for steel mesh on Interstate Route 91 near Little Rock, Arkansas. A second 5-inch completes the 10" slab.

from forms to finisher...

McGeorge Contracting uses Blaw-Knox Concrete Paving Spread on Interstate Paving Project

By use of coordinated Blaw-Knox Concrete Batching and Paving Equipment, McGeorge Contracting Company completed a three-mile section of Interstate Route 91 near Little Rock, Arkansas, within the allotted contract time. The company, long a leading highway and heavy construction contractor in Arkansas, chose the Blaw-Knox spread for this major concrete paving job.

A Blaw-Knox 200-bbl. Hi-cement bin served as a railhead transfer unit. The two-stop batch operation included a 400-bbl. Hi-cement bin and a P-3100 G aggregate bin set with a twin aggregate weigh batcher. Batch trucks moved dry material to the Blaw-Knox 34-E Dual Drum Paver. Running on 5,000 feet of Blaw-Knox 10-inch road forms was a Blaw-Knox concrete spreader, followed by a Model XE finisher equipped with the new Blaw-Knox quick adjustable screed.

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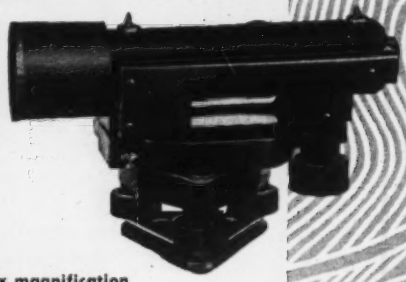

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A dry acid for safer removal of excess mortar and lime stains. Will not harm or discolor

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Will dissolve encrusted mortar from tools.
Easier to handle. No harmful fumes. Economical. Eliminates carboy deposit and breakage.

BERMAN CHEMICAL COMPANY
1927 North 12th Street — Toledo 2, Ohio

(Continued from page 102)

GA. Bowl-More, Inc., c/o Hugh K. Marshall, archt., 1107 W. Rugby Ave., College Park, Ga. Bids July 21. CD 7/2.

▲ **Hogan Bros. Constr. Co.**, 240 Focis St., Metairie, La., CA Est. $2,000,000, MOTOR HOTEL, HAPEVILLE, GA. Hilton Hotels Corp., 72 S. Michigan Ave., Chicago, Ill. George Saunders, 1114-C S. Carrollton Ave., New Orleans, La., archt.

J. H. Pool Constr. Co., 2106 Ingleside Ave., Macon, Ga. CA Est. $418,500, 31 RESIDENCES, McEvoy Dr., MACON, GA. David Thornton Land Co., 538 1st St., Macon, Ga.

W. Supply Co., Inc., 753 5 St., Macon, Ga., Day Labor, $125,000, WAREHOUSE-STORE, MACON, GA.

† **Van Winkle & Co.**, 805 Peachtree Bldg., Atlanta, Ga., LB $408,654, FIELD SERVICE TRAINING BLDG., MARIETTA, GA. Lockheed Aircraft Corp., Marietta, Ga. CD 4/12/56, under Ga., Dawsonville.

Killorin & O'Brien, 1201 E. 56 St., Savannah, Ga., Separate Contracts. $600,000, 50 RESIDENCES, Briar Field Subdivision, SAVANNAH, GA.

Teck Developers, 4743 Fairfax Ave., Savannah, Ga., Day Labor, $500,000, 50 RESIDENCES, Teck Subdivision No. 2, near Oakhurst St., SAVANNAH, GA.

G. S. & M. Co., P. O. Box 84, Warner Robins, Ga., Day Labor. $500,000, 40 RESIDENCES, Green Acres Estates Subdivision, WARNER ROBINS, GA.

▲ **Delta Constr. Co.**, P. O. Drawer 257, Waycross, Ga., LB $1,025,000, HOSPITAL, WASHINGTON, GA. Wilkes Co. Hospital Auth., Washington, Ga. Bids July 30. CD 7/15.

▲ **R. C. Dix**, c/o Williams & Ellis Real Estate, 929 N. 3rd St., Jacksonville, Fla., Day Labor, $1,000,000, 125 RESIDENCES, JACKSONVILLE, FLA.

Clutter Constr. Corp., 377 Westward Dr., Miami Springs Fla., CA $810,000 (8 bidders), low rent HOUSING, SARASOTA, FLA. Sarasota Housing Authority, 1912 N. Orange Ave., Sarasota, Fla. Bids July 28, awarded July 31. CD 7/17.

▲ **Rust Engineering Co.**, 930 Fort Duquesne Blvd., Pittsburgh 22, Pa., CA $2,000,000, design and construct vitr. clay sewer pipe PLANT, BESSEMER, ALA. W. S Dickey Clay Mfg. Co., 2131 29th Ave. N., Birmingham, Ala. CD 6/9.

J. M. King & Son, Box 3067, Baton Rouge, La., LB $481,482 (12 bidders), part 1 and 2 story, brick, concrete block Polk ELEMENTARY SCHOOL, Polk and Texas Sts., BATON ROUGE, LA. East Baton Rouge Parish School Bd., Baton Rouge, La. Bids July 28. CD 7/8.

▲ **Baymar Corp.**, 5020 Market St., Youngstown, O., CA Est. $3,000,000, brick, steel SHOPPING CENTER, Taylorsville Rd. and Hikes Point, near LOUISVILLE, KY. Stephen C. Baytos, c/o contractor. Wachter & McClellan, Warren, O., archts.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
August 19 Michigan
STREETS AND ROADS
August 21 Wisconsin

BUILDINGS—BA

Ill., **Chicago**—SCHOOL—BA 8/24—Bd. Educ., 228 N. LaSalle St., Charles Evans Hughes School. $800,000. Samuelson & Sanquist, 6141 W. Toughy Ave., archts. CD 6/11/57.

Ill., **Chicago**—SCHOOL—BA 8/24—Bd. Educ., 228 N. LaSalle St., Oliver Wendell Holmes School. $650,000. M. K. Young & Assocs., 140 S. Dearborn St., Zone 3, archts. CD 4/22/58.

O., **Cleveland**—HOSPITAL—BA 8/26—Salvation Army, 3443 Euclid Ave., Zone 15 (selected list of bidders), 50-bed Booth Memorial Hospital addn. $933,000. Geo. S. Rider Co., Terminal Tower, Zone 13, archt.-engr. CD 7/16.

▲ O., **Fairview Park** — SCHOOL, etc. — BA 9/1 — Bd. Educ., 4507 W. 213 St., Cleveland, Zone 26, high school addn., swimming pool. $1,000,000. Plans deposit $35 general and $35 each trades. Fulton, DeMotte, Larson & Nassau, 6014 Euclid, Cleveland 3, O., archts. CD 11/11.

HEAVY CONSTRUCTION—LB & CA

▲ **Comrs. Clermont Co.**, Batavia, O., received no bids July 27, Section K, administration bldg. for water project, BATAVIA, O. $3,100,000. Will re-advertise. CD 7/14.

▲ **Contractors Service Co.**, 6801 Vine St., Cincinnati, O., LB $505,541 (9 bidders), Section C, water lines, BATAVIA, O. Comrs. Clermont Co., Batavia, O., Bids July 27, CD 7/14;
D. Burch Constr. Co., 2445 Neff St., Dayton, O., LB $536,861 (9 bidders), Section D, water lines (Batavia, O.);
V.-C. Constr. Co., Upper Sandusky, O., LB $532,121 (12 bidders), Section E, water lines (Batavia, O.);
Pittsburgh Des Moines Steel Co., Neville Island, Pittsburgh, Pa., LB $127,200 (6 bidders), Section J, elevated tanks (Batavia, O.);
S. W. Rafferty Co., 6874 Kenwood Rd., Kenwood, Cincinnati, O., LB $117,659 (4 bidders), Section G, treatment plant, pump station (Batavia, O.).

▲ **Malan Constr. Corp.**, 2 Park Ave., New York, N. Y., LB $5,479,407, sewage treatment plant, Contr. No. 18, YOUNGSTOWN, O. City, City Hall, Youngstown, O. Bids Aug. 4. CD 6/26.

(Continued on page 106)

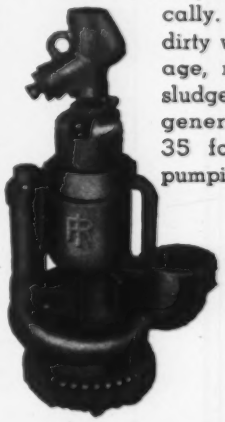
4 powerful air tools that can earn you a Dividend on Payroll Dollars

1 I-R diggers

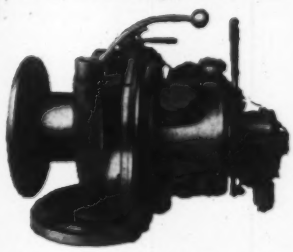
One man can loosen more material with an I-R Digger than eight men using hand methods. Diggers are available in 6 sizes from 19½ to 37⅝ pounds.

2 I-R sump pumps

Solve water problems immediately and economically. Pumps handle dirty water, oil, sewage, medium heavy sludge. Size 250 for general duty, size 35 for high head pumping.



3 I-R utility hoists



Can be mounted in any position including pole and column mountings for countless lifting, dragging and hoisting jobs. Available in 20 sizes.

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One of the contractor's greatest time and labor savers. Assures solid fill with no settlement, provides safety and ease of operation with rapid, high quality tamping. Made in single and triple unit sizes.

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weil Super HEAVY DUTY Sewage Ejector

- SCREENLESS
- RUGGEDLY BUILT
- NON-CLOG IMPELLER

THE ECONOMICAL SEWAGE PUMP with the *NON-CLOG impeller!*

This WEIL Screenless Heavy Duty Non-Clogging Sewage Ejector is ruggedly built for years of trouble-free operation. WEIL Pumps of this design are still operating satisfactorily after 25 years of service.

This unit is completely factory assembled, economical to install – only one piping connection is required. Pre-assembly and factory testing insure LESS installation time and no "call-back" servicing.

Inherent in the design of this pump is an ample reserve of strength to meet the most severe conditions. The ease and simplicity of installation and the record of many years of trouble-free operation make this pump the logical choice with the engineer, contractor and owner.

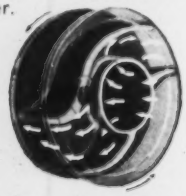


Fig. C-9001

This Two Blade NON-CLOG Impeller is the most important part of the screenless non-clog sewage pump. Not only does it effectively handle large diameter solids but it also passes rags and stringy material of various lengths which are washed into the sewage pit. Pumps with this impeller successfully handle difficult pumping jobs such as waste from public toilets, canning plants, hospitals and industrial installations.

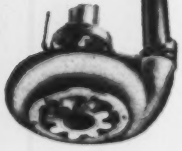


Fig. C-9021

This rugged pump casing with wide waterways permits unobstructed passage of the maximum solids handled by a non-clog impeller.

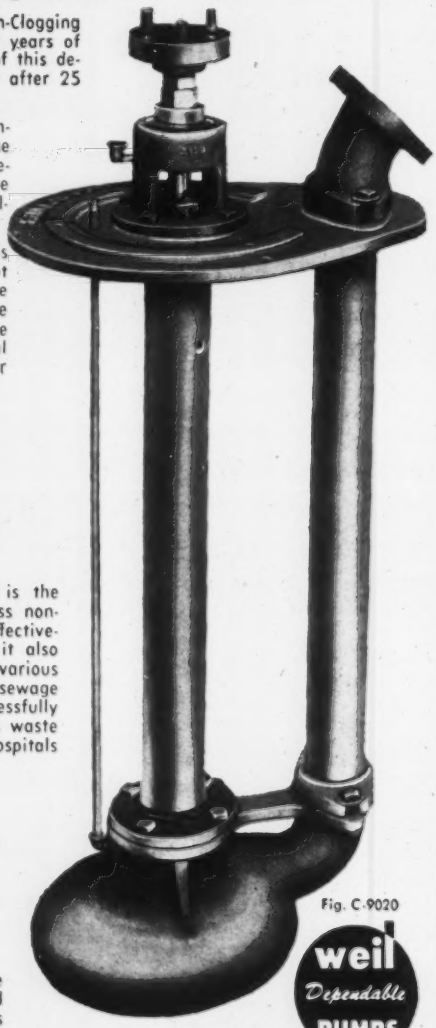


Fig. C-9020

weil Dependable PUMPS

Send for NEW Bulletin C-900 E

weil PUMP CO.

1528 NORTH FREMONT STREET • CHICAGO, ILLINOIS

(Continued from page 104)

▲ **INDIANA**—State Hy. Dpt., State House Annex, Indianapolis. Bids opened 7/28.

Ind.—**R. R. Dawson Bridge Co.**, Shelbyville, Ky., LB $407,904, est. $479,357 (13 bidders), bridge, Contr. 4683, Scott Co.; LB $155,563, est. $174,374 (5 bidders), bridge, Contr. 4693, Wayne Co.;

Ind.—**Peter Kiewit Sons' Co.**, 15806 Lorain St., Cleveland, O., LB $1,043,503 (5 bidders), bridge, Contr. 4769, Elkhart Co.;

Ind.—**Harold Tharp & Son**, Fountain City, Ind., LB $375,307, est. $501,208 (8 bidders), bridge, Contr 4694 Wayne Co. CD 7/16.

Divane Bros. Electric Co., 5010 W. Chicago Ave., Chicago, Ill., CA $725,384, electrical work, Canal and Cermak Rd. bridge No. 80.77-59-6, CHICAGO, ILL. Dpt. Purchases, City Hall, Chicago 2, Ill. Awarded July 17. CD 6/10/57.

Thumm Constr. Co., 4435 N. Damen Ave., Chicago, Ill. CA $502,196, sanitary sewers, Div. D Trunk, HIGHLAND PARK, ILL. City, City Hall, Highland Park, Ill. Awarded July 29. CD 7/22, under LB.

† **Paul Hardeman, Inc.**, 10579 Dale Ave., Stanton, Calif. LB $924,874, est. $1,000,000 (9 bidders), missile facilities addn., Chanute Field, RANTOUL, ILL. U. S. Eng., 475 Merchandise Mart, Chicago 54, Ill. Bids July 30. CD 7/6.

Siesel Constr. Co., 514 E. Ogden Ave., Milwaukee, Wis., CA $669,000, Howard Ave. Clearwell, MILWAUKEE, WIS. City, City Hall, Milwaukee, Wis. Bids July 28, awarded July 30. CD 8/3, under LB.

▲† **Beacon Constr. of Massachusetts**, 100 Hano St., Boston, Mass., CA $1,783,502, hospital, Wurtsmith Air Force Base, ENG-20-064-59-85, OSCODA, MICH. U. S. Eng., 1101 Washington Blvd., Detroit, Mich. Bids July 21. CD 6/26.

▲† **F. D. Rich Co., Inc.**, 550 Summer St., Stamford, Conn., CA $1,689,644, hospital, K. I. Sawyer Air Force Base, ENG-20-064-59-83, MARQUETTE, MICH. U. S. Eng., 1101 Washington Blvd., Detroit 31, Mich. Bids July 10. CD 7/21, under LB.

† **R. E. Dailey & Co.**, 21675 Telegraph Rd., Detroit 19, Mich., CA $601,407, radar tower, ENG-20-064-59-99, SELFRIDGE AIR FORCE BASE, MICH. U. S. Eng., 1101 Washington Blvd., Detroit, Mich. Bids July 16. CD 7/8.

BUILDINGS—LB & CA

▲ **Bob Schmitt Homes**, P.O. Box 167, Berea, O., Owner Builds, $1,750,000, 70 HOMES, Maple St., Barberry Dr. and 4th Ave., Woodlawn Estates, BEREA, O. Heine, Crider & Williamson, 105 Front St., Berea, O., archts. CD 7/2.

▲ **Bob Schmitt Homes** P.O. Box 167, Berea, O., Owner Builds, $2,000,000, 20 HOMES, Berea Downs, off Fair St., near Turnpike, BEREA, O. Heine, Crider & Williamson, 105 Front St., Berea, O., archts.

Don Casto Organization, 42 S. 4th St., Columbus, O., Owner Builds, $750,000, Northern Lights SHOPPING CENTER expansion, 3600 Cleveland Ave., COLUMBUS, O.

Feldman Brothers Co., 2332 Prospect Ave., Cleveland 15, O., LB $674,000, est. $870,000 (6 bidders), heating, ventilating, air-conditioning STORE, PARMA, O. The May Co., Euclid Ave. at Ontario, Cleveland 14, O. Bids Aug. 3. CD 7/23.

▲ **M. Applebaum & Son**, 19770 St. Clair Ave., Cleveland 19, O., CA Est. $1,300,000, 4 story 47 suite steel frame APARTMENT, 18975 Van Aken Blvd., incl. 72 car GARAGE, SHAKER HEIGHTS, O. Diplomat, Inc., 19770 St. Clair Ave., Cleveland 19, O. Charles C. Colman, 1220 Euclid Ave., Cleveland 14, O., archt. Christian, Schwarzenberg & Gaede, The Arcade, Cleveland 14, O., structural engrs. Robert Halverstadt & Assoc., The Arcade, Cleveland 14, O., mechanical engrs. Anton Eichmuller, The Arcade, Cleveland 14, O., electrical engr. CD 5/15/58, under 18975 Van Aken Blvd. Co., as owner.

▲ **H. L. Vokes Co.**, 1000 Wayside Rd., Cleveland 10, O., CA Est. $2,000,000, 150-unit MOTOR HOTEL Northfield and Warrensville Center Rds., SHAKER HEIGHTS, O. Somerset-Shaker Co., 740 Leader Bldg., Cleveland 14, O. Herman Feldstein, Spitzer Bldg., Toledo, O., archt.

▲† **Lummus Corp.**, 385 Madison Ave., New York, N. Y., CA altering former Atomic Energy Comm. HEAVY WATER PLANT to mfg. chemicals for Army Chemical Corps., NEWPORT, IND. Food Machinery & Chemical Corp., 161 E. 42 St., New York, N. Y.

Sollitt Constr. Co., Inc., 301 Columbia St., South Bend, Ind., CA Est. $650,000, general contract 4 story, 50 x 120 ft., JEFFERSON MEDICAL ARTS, b. conc. paving, SOUTH BEND, IND. Herbert W. Feldman & Assocs., 702 Cherry Lane, South Bend, Ind. CD 6/3.

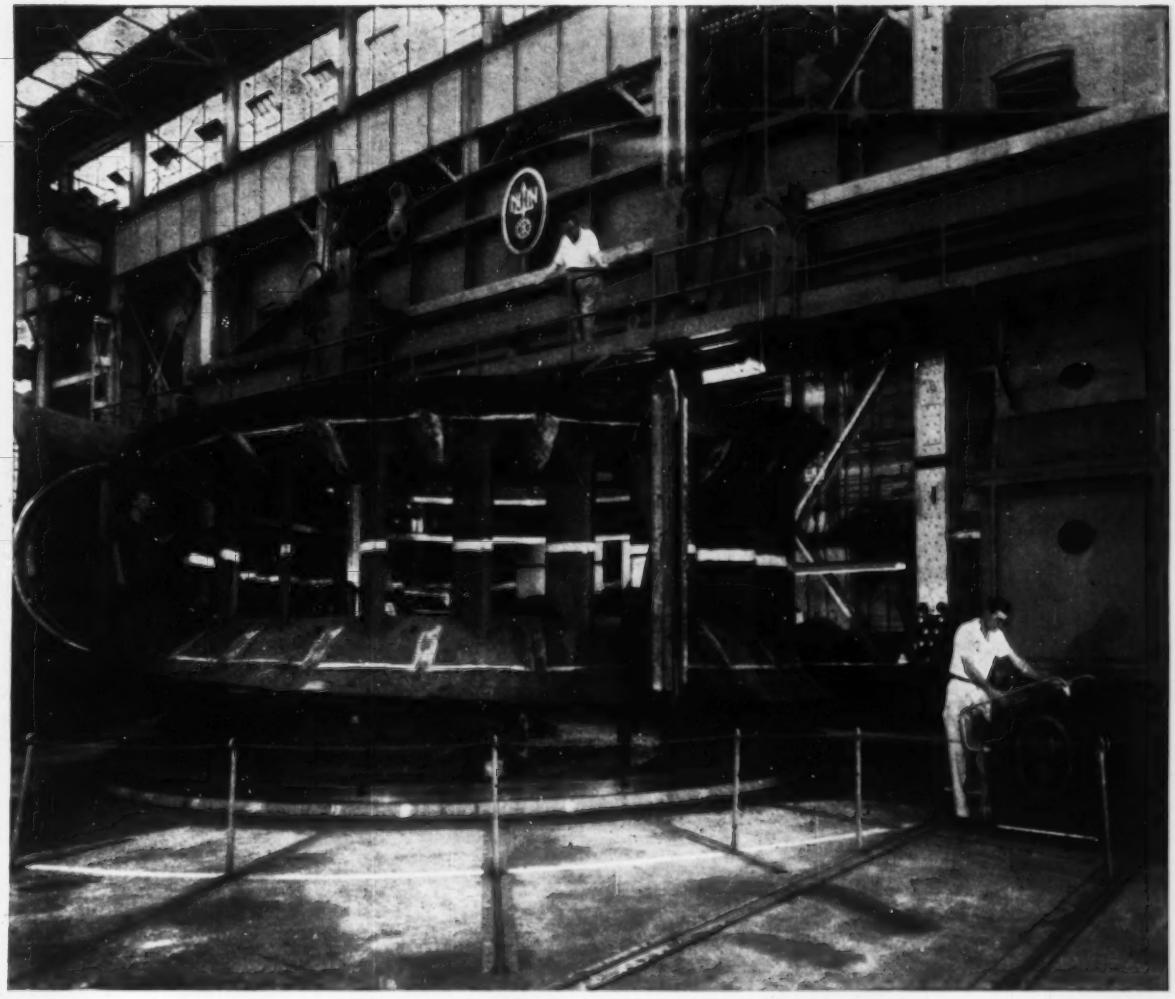
▲ **Power Constr. Co.**, 125 S. Marion, Oak Park, Ill., CA $1,300,000, Eifrig HALL, HEATING PLANT, RESIDENCE, RIVER FOREST, ILL. Concordia Teachers College, 7400 Augusta Blvd., River Forest, Ill. Bids July 2, awarded July 15. CD 7/14.

▲ **Hollywood Builders**, 3454 Devon-Lincolnwood, Ill., Own Forces, $16,000,000, 800 HOME subdivision, Dundee Rd. and Elmhurst, WHEELING, ILL.

Chas. D. Smith & Son, Hy. 23, Fond du Lac, Wis., LB $856,000 (17 bidders), general contract INFIRMARY, KING, WIS. State Dpt. Veterans Affairs, State Capitol, Madison 3, Wis. Bids July 22. CD 6/17.

Hedrich Constr. Co., Chilton, Wis., CA Est. $565,000, general contract CHURCH, SHEBOYGAN, WIS. First Congregational Church, 7th and Ontario Sts., Sheboygan, Wis. Bids May 5, awarded in July. CD 4/14.

(Continued on page 108)



42 ft. boring mill-rough cuts a stay ring for one of the world's most powerful hydraulic turbines.

Newport News builds six king-size turbines for Niagara Power Project

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Shipbuilding and Dry Dock Company
Newport News, Virginia

(Continued from page 106)

MISSISSIPPI TO ROCKIES

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS STREETS AND ROADS

August 20 Kansas — August 21 Minnesota

† **South Dakota**—BA 9/15—U. S. Eng., 1709 Jackson St., Omaha 2, Neb., access road, Stage I, Big Bend Reservoir Proj., near Fort Thompson, ENG-25-066-50-5. $600,000-$700,000. CD 7/31.

▲† **Minnesota**—BA About 9/15—U. S. Eng., 1217 U. S. Post Office & Custom House, St. Paul, Zone 1, Upper Lock, St. Anthony Falls Project, Mississippi River, Minneapolis, Inv. No. CIVENG-21-018-60-1. Plans deposit $100. CD 9/19.

BUILDINGS—BA

▲ **Tex., Beaumont**—HOSPITAL—BA 8/20—Sisters of Charity of Incarnate Word, c/o St. Elizabeth's Hospital, N.W., corner Calder Ave. and 11th St. (selected list of bidders) 217 bed hospital, appurtenances. $5,662,000. Pitts, Mebane & Phelps, 1872 Calder Ave., archts. CD 3/27/58.

Tex., Houston—BA 8/25—City, City Hall, wid'n., paving Memorial Dr., Detering and Crestwood thru Memorial Park. $435,000. J. G. Turney, 2502 S. MacGregor, engr. CD 3/5.

Minn., Grand Rapids—SCHOOL—BA 8/26—Bd. Educ. School Dist. No. 318, 3 story, Senior High School addn. $690,000. Plans deposit $25. Melander, Fugelso & Assoc., 603 Alworth Bldg., Duluth, archts. CD 9/18.

▲† **N. M., Los Alamos**—CIVILIAN POWER REACTOR, etc.—BA On Or About 9/29—Atomic Energy Comn., Los Alamos Area Office, civilian power reactor and Rover hot cell facilities, TA-3, IFB 291-60-3. $2,-500,000-$3,000,000. CD 9/22.

BUILDINGS—SLC

Tex., Corpus Christi—MOTOR HOTEL—American Motor Hotel Corp., c/o A. Art Williams, Jr., archt., 541 S. Water St., soon lets contract 3 story, 160-unit luxury motor hotel, incl. swimming pool. $900,000. CD 5/27.

HEAVY CONSTRUCTION—LB & CA

▲ **IOWA**—State Hy. Comn., Ames, rejected bids July 28, c. conc. 3.962 mi. I-IG-80-4 (4) 142, Polk Co., LB $1,702,722; c. conc. 1.656 mi., I-80-5(7)146, Polk Co., LB $535,545. CD 7/31, under LB.

▲ **NORTH DAKOTA**—State Hy. Dpt., Bismarck. Bids opened 7/31,

N. D.—**Harris Constr. Co.**, S. Hy. 281, Aberdeen, S. D., LB $469,168, grading 11.334 mi. Interstate 94 west of Casselton, Proj. I-94-8(21)316, Cass Co.;

N. D.—**Bober Constr. Co.**, Minot, N. D., LB $525,570, base, bit. surf. tr. 15.501 mi. SH 9 and 20 from near Kensal to south of Courtenay, Proj. S-275(8) and S-295(9). Stutsman Co.;

N. D.—**William Collins & Sons, Inc.**, 528 Gate City Bldg., Fargo, N. D., LB $255,030, grading, tr. serv. gravel 12.957 mi. SH 46 west of Enderlin, Proj. S-354 (8), Barnes, LaMoure and Ransom Counties. CD 7/15.

▲ **Otto J. Eickhos & Son**, 209 N. Main St., Crookston, Minn., LB $1,191,070, est. $1,243,098 (11 bidders), radar tower power plant and electric distribution sys., Finley Air Force Station, ENG. 25-066-59-156, FINLEY, N. D. U. S. Eng., 1709 Jackson, Omaha 2, Neb. Bids July 31. CD 7/8.

† **U. S. Eng.**, Box 1229, Galveston, Tex., cancelled bids to have been opened July 30, dredging Gulf Intracoastal Waterway, Live Oak Bay to Culver Cut, near Palacios, Matagorda Co., ENG-41-243-59-68, TEXAS. Est. over $500,000. CD 7/10.

▲ **Refinery Engineering Co.**, 108 N. Trenton St., Tulsa, Okla., LB $2,998,936, (4 bidders), steel tank farm, warehousing, off-site facilities for petroleum processing plant, ORANGE, TEX. Orange County Navigation Dist. & Port Comn., Orange, Tex. NGL Corp., Houston, Tex., lessee. CD 7/8.

BUILDINGS—LB & CA

Fairview Constr. Co., 605 Winnetka Ave. N., Minneapolis, Minn, Owner Builds, $450,000, 3 story, 184x131 ft., 55 unit APARTMENT, 2500-12 Blaisdell Ave., MINNEAPOLIS, MINN. G. Kolinsky, 6635 Newton Ave. S., Minneapolis, Minn., archt.

Bor-Son Constr. Co., 1209 West 78½ St., Minneapolis, Minn., LB $411,600, (19 bidders), general contract TERMINAL, incl. 2 story office and 1 story garage, North of County Road C and west of Fairview Ave., ROSEVILLE, MINN. Mueller Transportation Co., 2523 Wabash Ave., St. Paul, Minn. Bids July 30. CD 7/21.

▲ **Sharp Bros. Constr. Co.**, 1014 E. 19 St., Kansas City, Mo., CA Est. $1,000,000, 119 x 306 ft. Jewish COMMUNITY CENTER, incl. 100 x 130 ft. little theatre, 141 x 160 ft. gym, 145 x 119 ft. social hall, rein.-con. indoor swimming pool, KANSAS CITY, MO. Jewish Community Center, 1600 Linwood Blvd., Kansas City, Mo., Bids April 29, awarded July 24. CD 5/5, under LB.

▲ **I. E. Orheim Constr. Co.**, Box 568, Minot, N. D. CA $1,210,500, 5 story HOSPITAL ADDN. MINOT, N. D. St. Joseph Hospital, 4th Ave and Third St. SE, Minot, N. D. CD 7/15, under LB.

Chris Hansen Constr. Co., 1615 East 7th St., Sioux City, Iowa, LB $749,788, est. $900,000. MEN'S DORMITORY, WAYNE, NEB. State Teachers College, Wayne, Neb. Bids July 15. CD 7/9.

Pederson Constr. Co., 2925 Ronan Dr., Billings, Mont., LB $696,840, (6 bidders) general constr. 5 story, bsmnt., rein.-con. frame, 100x140 ft. OFFICE, BILLINGS, MONT. Yale Realty Co., c/o Orr Pickering & Assocs., archts., Fratt Bldg., Billings, Mont. Bids July 28. CD 7/2.

▲ **C. D. Yarbrough Constr. Co.**, Box 851, Austin, Tex., LB $2,279,916, general constr. 7 story BUSINESS ADMINISTRATION and 5 story ECONOMICS BLDG., AUSTIN, TEX. University Texas, Main Admin, Bldg., Austin, Tex. Bids July 30. CD 6/30;
J. M. Boyer, Box 4308, Austin, Tex. LB $497,739, mechanical work; LB $407,588 heating and air-conditioning for business admin. and economics bldg. (Austin, Tex.)

Braes-Link Developers, 3271 W. Alabama St., Houston, Tex., CA Est. $700,000, SHOPPING CENTER, off Stella Link Rd., HOUSTON, TEX. Braes-Link Shopping Center, 3271 W. Alabama St., Houston, Tex. CD 8/4.

▲ **Rozelle Constr. Co., Wm. Rozelle Jr.**, 4034 Grapevine Rd., Houston, Tex., Owner Builds, $421,500, 21 DWELLINGS; $410,000, 18 DWELLINGS; $418,225, 25 DWELLINGS, Woodforest Subdivision HOUSTON, TEX. Grand total $1,249,725. CD 7/16.

▲ **Southwestern Constr. Co.**, Box 1204, Houston, Tex., CA $1,204,896, HOSPITAL, HOUSTON, TEX. Houston Negro Hospital, 2900 Elgin St., Houston, Tex. Bids June 30. CD 7/16, under LB.

▲ **U. S. Industrial Chemicals Co., Div. National Distillers & Chemical Corp.**, Miller Rd., Houston, Tex Separate Contracts, $13,000,000, POLYETHYLENE PLANT expansion, HOUSTON, TEX. CD 4/1.

R. G. Farrell Co., Box 137, Odessa, Tex., CA Est. $400,000, 40 room HOTEL, swimming pool, ODESSA, TEX. Lincoln Hotel, 4th and N. Lincoln, Odessa, Tex. J. Ellsworth Powell, Petroleum Bldg., Odessa, Tex., archt. CD 3/28/56.

McCreless Interests, Builders Div., Fair Ave., San Antonio, Tex., Owner Builds, $422,000, 34 DWELLINGS; $401,400, 30 DWELLINGS, off Dauchy Rd., SAN ANTONIO, TEX. CD 7/29.

A. P. Kash & Sons, Box 1472, Big Spring, Tex., LB $451,066, est. $500,000, 63 bed HOSPITAL, SNYDER, TEX. Cogdell Memorial Hospital for Scurry Co., Snyder, Tex. Crockett & Assocs., 216 N. 5th St., Odessa, Tex., archts.-engrs. Bids July 28. CD 7/23.

(Continued on page 110)

POSEY STEEL PLATE FABRICATION

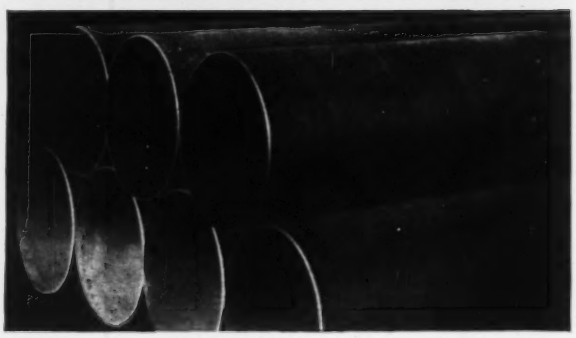
PRESSURE VESSELS

Backed by a half-century of experience, we are well equipped to design, fabricate and erect pressure vessels of all types and sizes, of steel or alloy steel, for liquid or gas. All standard codes are met, including ASME, API-ASME and API.

LARGE O. D. STEEL AND ALLOY PIPE

We have earned a reputation as a dependable source for fabricated pipe to meet a wide variety of applications. Carbon steel, stainless steel, nickel clad, stainless clad, monel clad, wrought iron . . . from 14" diameter and larger. Piling, dredge pipe and all accessories for the pipe line are our specialties.

Write, wire or phone for quotations and other information without obligation.



POSEY IRON WORKS, INC.

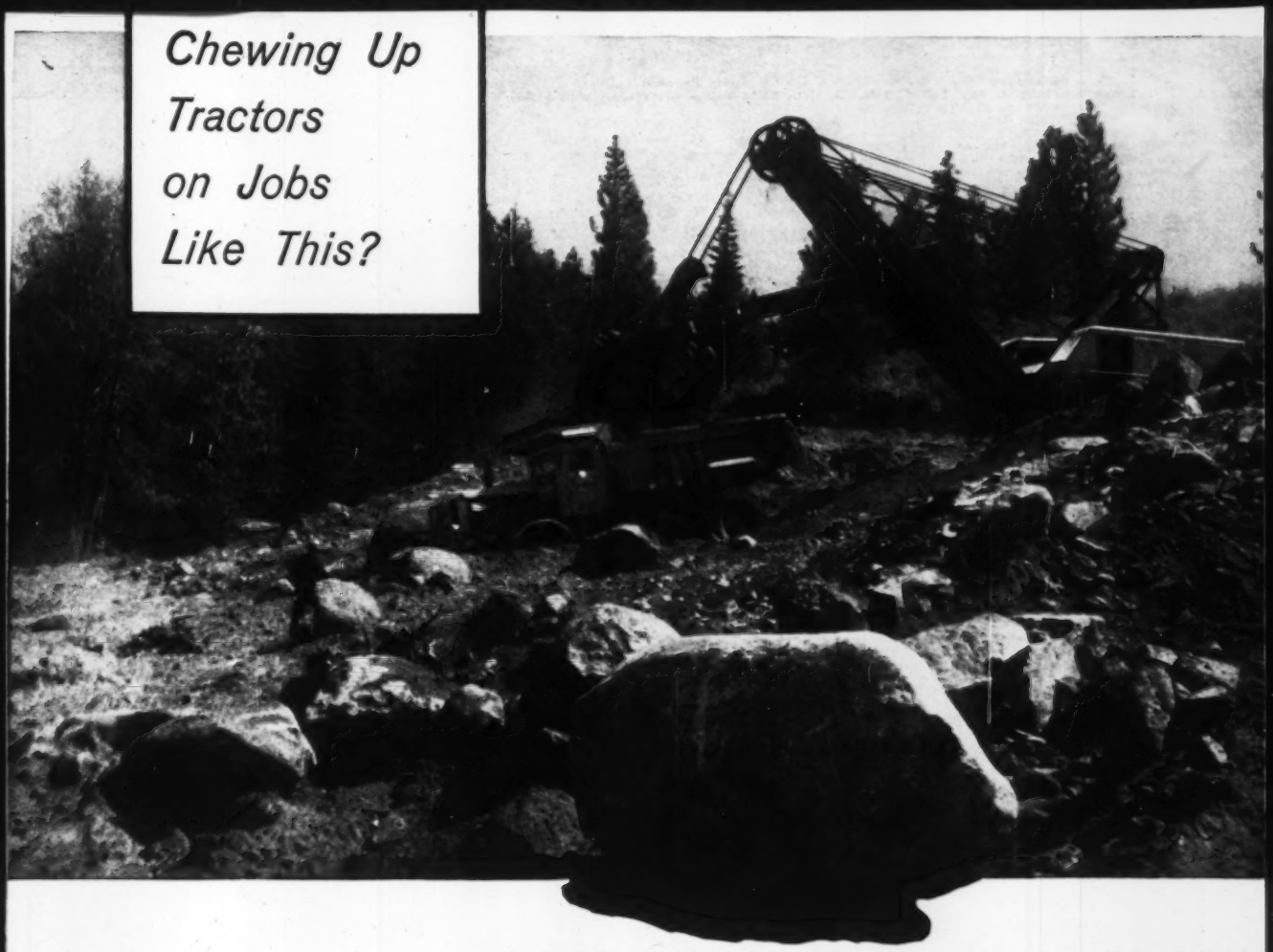
Steel Plate Division

LANCASTER, PENNSYLVANIA

New York Office: Graybar Building

DIVISIONS: STEEL PLATE FABRICATION • GRAY IRON AND STEEL FOUNDRY • BRICK MACHINERY AND MIXERS • INDUSTRIAL HEATING • IROQUOIS ASPHALT PLANT • TUNNEL AND MINE EQUIPMENT

Chewing Up Tractors on Jobs Like This?



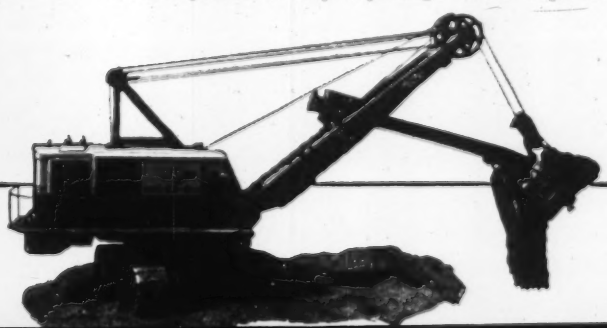
4-yd 88-B Proves a Point on Mountainous Interstate 40

Does a big shovel have a place on today's highway jobs? Wood-Kirst Company made it an emphatic "YES" as its 4-yd Bucyrus-Erie 88-B banged through its 700,000-cu yd share of a 1,200,000-yd job on relocation of U. S. Interstate 40 near California's worst snow zone—mountainous Donner Pass.

Wood-Kirst proved there was no need to tear tractors to pieces with rippers and scrapers in this marginal material . . . by putting the *big* shovel to work. It handled the job faster and more profitably.

Why? Because the 88-B shovel has the best crowd system of any 4-yd rig — twin rope balanced crowd. It gives the operator full control over both crowd *and* hoist at the most critical point in the digging cycle — as the dipper enters the bank. With speed and force automatically proportioned between these two functions, it's no wonder that the 88-B, in straightaway mucking, turned out truckloads of material in four passes, including broken granite where bank toe was exceptionally tight. Assigned to the toughest rock on the project, the 88-B logged over 700 hours worktime with only 5 hours downtime!

PROVE THE POINT TO YOURSELF! We'll be happy to go over the advantages of 88-B operation with you. Write Bucyrus-Erie Company, South Milwaukee, Wisconsin, Dept. 20EA.



BUCYRUS ERIE®

Builds Better Equipment

(Continued from page 108)

▲ **E. I. duPont deNemours & Co.,** DuPont Bldg., Wilmington, Del., Owner Builds, POLYETHYLENE RESIN PLANT, VICTORIA, TEX.

Lembke Constr. Co., Box 771, Colorado Springs, Colo. LB $658,856, 2 story SCIENCE AND INDUSTRIAL ARTS BLDG., ALAMOSA, COLO. Adams State College, Alamosa, Colo. Bids July 28. CD 7/6.

FAR WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
September 3 California
STREETS AND ROADS
August 20 Nevada September 2 California

BUILDINGS—BA

▲ **Calif., Newhall**—SCHOOL—BA 9/1—William S. Hart Union High School Dist., 24825 N. Newhall Ave., concrete, tilt up and reinforced brick, Junior High School. $1,330,000. Walker, Kalionzes, Klingerman, 488 S. San Vicente Blvd., Los Angeles, archts. CD 5/13.

Calif., Beverly Hills—PARKING STRUCTURE—BA 9/2—City, City Hal., 7 story, rein.-con. parking structure. $780,000. Welton Becket & Assocs., 5657 Wilshire Blvd., Los Angeles, archts. CD 7/6, under LB.

HEAVY CONSTRUCTION—LB & CA

† **Promacks & Western Equipment & Supply Co.,** White-Henry-Stuart Bldg., Seattle 1, Wash., LB $482,996, boilerhouse, 2,400 ft. utilidor and heating sys. in bldgs., Mount McKinley National Park, ALASKA. National Park Service, Anchorage, Alaska. Bids July 16. (Correction—Low Bidder). CD 7/25, under LB.

† **Peter Kiewit Sons Co.,** Idaho Falls, Idaho, LB $749,498, est. $1,042,149, 3.2 mi. Portneuf pump transmission line, Michaud Proj., Fort Hall Indian Reservation, Inv. LO 602-7-23, IDAHO. Bureau of Indian Affairs, 1001 N.E. Lloyd Blvd., Portland, Ore. Bids July 23. CD 7/7.

† **IDAHO**—Bureau P. Rds., P.O. Box 1559, Boise, Bids opened 7/30,

P. Kiewit Sons' Co., Idaho Falls, Idaho, LB $749,498, est. $1,042,149 (16 bidders), clearing, grubbing, grading, surf. 14.03 mi. Banks-Lowman Hy. in Boise National Forest and constr. 150 ft. bridge with precast concrete stringers, Proj. 24-A4, B, Boise Co. CD 7/13.

▲ **UTAH**—State Rd. Comn., State Capitol, Salt Lake City,

Utah—W. W. Clyde, Springville, Utah, CA $2,558,284, graded drained roadway, one 26.17 ft. double box culvert from 18th S. St. to 45th S., 3.96 mi. Proj. I 15-7 (14) 302 and I-15-7 (15) 300, Salt Lake Co., Bids July 7. CD 7/15, under LB;

Utah—Strong Co., Springville, Utah, CA $598,315, plant mix bit. surf. road, seal coat 17.956 mi. U. S. 89, Proj. F 027-2 (2), Garfield and Kane Counties. Bids June 30. CD 7/9, under LB.

▲ **Morrison-Knudsen Co., Inc.,** 319 Broadway Ave., Boise, Idaho, CA, exploratory work, Williams, ARIZONA. Atchison, Topeka & Santa Fe R.R. Sys., (Coast Lines), J. G. Fry, ch. engr., 121 E. 6th St., Los Angeles 14, Calif. CD 5/15.

ARIZONA—State Hy. Comn., 206 S. 17 St., Phoenix, Bids opened 7/31,

Arizona Concrete Pipe Co., 1746 W. Fillmore St., Phoenix, Ariz., LB $527,178, storm drain, wid'n. portion roadway beginning N. of Buckeye Rd. and extending N. for 2.5 mi. Phoenix Interstate Freeway, Item No. 96, Maricopa Co. CD 7/17.

▲† **D. M. Drake Co.,** 1600 NW Savier, Portland, Ore., CA $2,496,758, COMARC facilities, Adair Air Force Station, ENG-45-108-59-129, CORVALLIS, ORE. U. S. Eng., 1519 S. Alaskan Way, Seattle 4, Wash. CD 7/27, under LB.

CALIFORNIA—State Div. Hys., 120 S. Spring St., Los Angeles, Bids opened 7/30,

Calif.—R. J. Noble Co., 15505 Anaheim-Olive Rd., Orange, Calif., LB $528,597 (8 bidders), grading, surf. to constr. frontage road for future freeway State Sign Rte. 55 between 19th St. in Costa Mesa and 0.2 mi. N.E. of Palisades Rd. 2.7 mi. VII-Ora 43-CMS, Orange Co.;

Calif.—United Sprinkler Co., 2448 Lee Ave., El Monte, Calif., LB $127,791 (4 bidders), landscaping 3.6 mi. San Diego Freeway (State Sign Rte. 7) between Matteson Ave. and Wilshire Blvd. in and near Culver City and Los Angeles, VII-L.A.-158-C1C, LA, A, Los Angeles Co. CD 7/7.

KEC Co., 22018 S. Norwalk Blvd., Artesia, Calif., CA $473,268, Bolsa Chica Channel, SANTA ANA, CALIF. Orange County, Courthouse, Santa Ana, Calif. Bids July 22, awarded July 28. CD 7/3/56.

Alton V. Phillips Co., 4055 21 St. W., Seattle, Wash., CA $941,790, sub-structure of bascule (double-draw) bridge to span 2 channel Honolulu Harbor, HONOLULU, HAWAII, U. S. Eng., Honolulu, Hawaii. Bids June 18. CD 6/25, under LB.

BUILDINGS—LB & CA

▲ **Henry C. Beck Co.,** 3500 N. Central, Phoenix, Ariz., CA $3,500,000, 8 story, BANK OF DOUGLAS addn., Monroe and 1st Ave., PHOENIX, ARIZ. The Bank of Douglas, 44 W. Monroe St., Phoenix, Ariz. Chas. G. Polacek, 3424 N. Central Ave., Phoenix, Ariz., archt.

▲ **Bell & Valdez Development Co.,** 14212 Eastgate Hills Blvd., Bellevue, Wash., Day Labor, $1,409,825, 101 HOUSES, 166th N.E. and N.E. 5th St., BELLEVUE, WASH. CD 12/15/54.

▲ **Baugh Constr. Co.,** 922 Popular Place, Seattle, Wash., CA Est. $1,900,000, 10 story, rein.-con. APARTMENT, SEATTLE, WASH. Rochdale House, Inc., 115 15 Ave. N., Seattle, Wash. CD 4/10/58.

▲ **Cawdrey & Vemo, Inc.,** 3601 Fremont Ave., Seattle 3, Wash., LB $2,344,525 (8 bidders), general contract 10 story, BAYVIEW MANOR RETIREMENT HOME, SEATTLE, WASH. Seattle First Methodist Home, 1306 2 Ave., Seattle 4, Wash. Bids July 30. CD 7/14.

▲ **Dalecrest Co.,** Box 609, Canoga Park, Calif., Owner Builds, $1,862,000, 128 DWELLINGS, Lemay St., Welby Way, Archwood St., CANOGA PARK, CALIF. Duncan & Conroy, 13310 Moorpark St., Sherman Oaks, Calif., archts.

▲ **Tom E. Norcross,** 6053 Atlantic Ave., Long Beach, Calif., LB $1,751,600 (7 bidders), rein.-con., gunite, masonry Clark Junior High School conversion to Crescenta Valley HIGH SCHOOL, 4400 Ramsdell Ave., La Crescenta, GLENDALE, CALIF. Glendale Unified School Dist., 411 E. Wilson Ave., Glendale, Calif. Bids July 30. CD 7/15.

Sunset Pacific Co., 6691 Paramount Blvd., Long Beach, Calif., CA $408,000, 34 DWELLINGS, Lynbrook, Humford and Richdale Aves., LA PUENTE, CALIF. H & W Land Co., 6691 Paramount Blvd., Long Beach, Calif.

S. J. Hunsaker & Sons, 4405 Irwindale Ave., Covina, Calif., CA $524,400, 47 DWELLINGS, Kwis Ave., Glenstone Ave., Shefford St., LA PUENTE, CALIF. Glendora Ranchos, 4405 Irwindale Ave., Covina, Calif.

Carson Constr. Co., 7862 S. Western Ave., Los Angeles, Calif., CA $713,300, 59 DWELLINGS, W. 213 St., Broadwell Ave. and S. Berendo Aves., LOMITA, CALIF. Inglewood Land Co., 7862 S. Western Ave., Los Angeles, Calif.

▲ **Crown Constr. Co.,** 5059 W. Pico Blvd., Los Angeles, Calif., CA $2,231,065, est. $1,839,240, Las Palmas SCHOOL for Girls, 1500 S. McDonnell Ave., LOS ANGELES, CALIF. Bd. Supervs. Los Angeles Co., Hall of Records, Los Angeles, Calif. Bids July 1, awarded July 28. CD 7/6, under LB.

Morley Constr. Co., 7700 Sunset Blvd., Los Angeles, Calif., LB $523,500, (4 bidders), 2 story rein-con. CLASSROOM AND MUSIC BLDG., Venice High School, LOS ANGELES, CALIF. Bd. Educ., 1425 S. San Pedro St., Los Angeles, Calif. W. F. Rucky 940 S. Figueroa St., Los Angeles, Calif., archt. Bids July 24. CD 10/30.

Sierra Downs Constr. Co., 9744 Lincoln Ave., Anaheim, Calif., Owner Builds, $668,500, 43 stucco DWELLINGS, Tract 4510, REDLANDS, CALIF.

J. Putnam Henck, 3947 Sierra Way, San Bernardino, Calif., LB $997,049, (9 bidders), ADMINISTRATION BLDG., RIVERSIDE, CALIF. University of California, Riverside Campus, Riverside, Calif. Allison & Rible, 3670 Wilshire Blvd., Los Angeles 5, Calif., archts. CD 4/21/52.

▲ **Salerno Corp.,** 7499 Bagdad St., San Diego, Calif., CA $1,040,820, 84 DWELLINGS, Salermo Dr., Anastasia St., Ardmore Dr., SAN DIEGO, CALIF. Halton Co., 7499 Bagdad St., San Diego, Calif.

Del E. Webb Constr. Co., 302 S. 23rd Ave., Phoenix, Ariz., Owner Builds, $751,690, 65 DWELLINGS, Mt. Elbus Ct., Mt. Foster and Davis Aves., SAN DIEGO, CALIF.

Geo. A. Fuller Co., 3100 W. 8th St., Los Angeles, Calif., CA $650,000, 6 story, concrete, steel OFFICE, 811 N. Broadway, SANTA ANA, CALIF. M. S. Bernard, 813 N. Broadway, Santa Ana, Calif.

Roek Constr. Co., P.O. Box 783, Stockton, Calif., CA $598,840, Lincoln HIGH SCHOOL, 1st addn., STOCKTON, CALIF. Lincoln Unified School Dist., 818 Lincoln Rd., Stockton, Calif. CD 6/24, under LB.

▲ **Williams & Burrows, Inc.,** 500 Harbor Blvd., Belmont, Calif., LB $2,789,490 (8 bidders), SENIOR HIGH SCHOOL No. 2, VENTURA, CALIF. Ventura Union High School Dist., Ventura, Calif. Bids July 29. CD 7/1.

Sant Constr. Co., 1461 San Marino Ave., San Marino, Calif., LB $448,134, 38 stucco DWELLINGS, Tract 2897, WESTMINSTER, CALIF. Commons Co., 1455 W. Lincoln Ave., Anaheim, Calif.

▲ **Henry M. Mason Co.,** 2206 N. W. Thurman St., Portland, Ore., CA $2,883,000, LABOR AND INDUSTRIES BLDG., SALEM, ORE. State Bd. Control, Capitol, Salem, Ore. CD 7/30, under LB.

CANADA

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
September 2 Ontario
STREETS AND ROADS
August 19, September 20 Ontario

BUILDINGS—BA

▲ **B. C., Vancouver**—CLASSROOM ADDN.—BA 8/25—University of British Columbia, Vancouver, rein.-con. classroom addn., Buchanan Bldg., University of British Columbia. $1,400,000. Plans deposit $50. Thompson, Berwick & Pratt, 1553 Robson, archts. CD 6/19.

BUILDINGS—SLC

Man., Brandon—ARTS AND LIBRARY—Brandon College, Brandon, soon lets contract arts and library, $600,000. Plans deposit $200. Green, Blankenstein, Russell & Assocs., 222 Osborne St. N., Winnipeg, archts. CD 2/27.

HEAVY CONSTRUCTION—LB & CA

ONTARIO—Dpt. Hys., Parliament Bldgs., Toronto, Bids opened 7/8,

Dineen Constr. Ltd., 55 York St., Toronto, Ont. LB $637,833, wid'n. Credit River Bridge, Queen Elizabeth Way (Contract 59-230), Toronto. CD 5/12.

▲ **ONTARIO**—Dpt. Hys., Parliament Bldg., Toronto, Bids opened 7/29,

Sterling Constr. Co. Ltd., Walkerville, Ont., LB $1,224,599, granular base, hot mix paving 10.4 mi. Hy. 40 (Contract 59-182) Chatham. CD 7/1.

▲ **Pigott Constr. Co. Ltd.,** 1250 Bay St., Toronto, Ont., CA $1,434,796, F. G. Gardiner Expressway, Contract R-23-59, about 800 ft. rein.-con., structural steel elevated structure, Station 249 plus 4, to Station 257 plus 9, TORONTO, ONT. Municipality of Metropolitan Toronto, 67 Adelaide St. E., Toronto, Ont. Bids July 20, awarded July 29. CD 7/27, under LB.

▲ **A. Janin & Co. Ltd.,** 7085 Cote des Neiges Rd., Montreal, Que., LB $1,120,000, highway tunnel imprvs., Lower Beauharnois Lock, Soulanges Section, The St. Lawrence Seaway, Beauharnois, QUEBEC St. Lawrence Seaway Auth., No. 2 Temporary Bldg., Ottawa, Ont. H. H. L. Pratley Co., 1117 St. Catherine St. W., Montreal, Que., consultants. Foundation of Canada Engineering Corp. Ltd., 8 Spadina Ave., Toronto, Ont., assocs. consultants.

▲ **QUEBEC**—Provincial Dpt. Hys., Parliament Bldgs., Quebec City,

Komo Constr. Ltd., 1500 St. Vallier St. W., Quebec City, Que., CA Est. $3,000,000, hy. grading Route 9, St. Romauld, Charny Dist. CD 10/8.

BUILDINGS—LB & CA

▲ **H. K. Ferguson Co.,** 1783 E. 11th St., Cleveland O., CA, No. 2 GALVANIZING LINE, HAMILTON, ONT. Dominion Foundries & Steel Ltd., Depew St., Hamilton, Ont. CD 10/12/55.

The R. Timms Constr. & Engineering Ltd., Lincoln St. W., Welland, Ont., CA $976,796, 2 story, 70,000 sq. ft. masonry COLLEGIATE, NIAGARA FALLS, ONT. Stamford Dist. Bd. Educ., 1173 Drummond Rd., Niagara Falls, Ont. Awarded July 29. CD 8/3, under LB.

M. Sullivan & Son Ltd., Elgin St., Arnprior, Ont., CA Est. $500,000, (7 bidders), 90 bed HOSPITAL ADDN. Drummond St., PERTH, ONT. Perth Dist. Great War Memorial Hospital, Perth, Ont. Balharrie, Helmer & Morin, 77 Metcalfe St., Ottawa, Ont., archts.

▲ **Louis Donolo, Inc.,** 8320 St. Lawrence Blvd., Montreal, Que., CA $1,500,000, (3 bidders), rein.-con., masonry 80 suite APARTMENT, Sherbrooke St. W., MONTREAL, QUE. Chequers Place Apartment Bldg., c/o Greenspoon, Freedlander & Dunne, archts., 4151 Sherbrooke St. W., Montreal, Que. Bids June 29, awarded July 28. CD 6/19.

Cimota Constr. Corp., Ltd., 128 Blvd. Ste. Anne, Giffard, Que., CA Est. $800,000, 1, 3 and 5 story CONVENT, Chemin St. Louis, QUEBEC CITY, QUE. Marymount College, 31 Mont Carmel St., Quebec City, Que. Bids July 3, awarded July 23. CD 6/30.

Hector Auger Ltee, 491 Bonaventure St., Three Rivers, Que., CA Est. $800,000, 3 story, 70 x 140 ft., concrete, structural steel frame, stone SEMINARY ADDN., THREE RIVERS, QUE. Le Seminaire de St. Jospeh des Trois Rivieres, Laviolette St., Three Rivers, Que. Audet, Tremblay & Audet, 1100 Prospect St., Sherbrooke, Que., archts. Awarded July 28. CD 3/2.

U. S. POSSESSIONS

HEAVY CONSTRUCTION—BA

▲† **CANAL ZONE**—BA about 12/1—Panama Canal Co., Balboa,

1,128 ft. superstructure cantilver arch truss type bridge over Panama Canal. Plans deposit $100.

AMERICANS ABROAD

HEAVY CONSTRUCTION—LB & CA

▲† **H. K. Ferguson Co.,** 1783 E. 11th St., Cleveland O., U.S.A., CA POWER PLANT, TRIPOLI, LIBYA, International Co-operation Admin., Malatico Bldg., Wash. 25, D. C., U.S.A.

▲ **American Machine & Foundry Co.,** 261 Madison Ave., New York 16, N. Y., CA $4,670,000, design and construct, CIGARETTE PLANT, THAILAND. Govt. of Thailand, Bangkok, Thailand.

FOREIGN

BUILDINGS—LB & CA

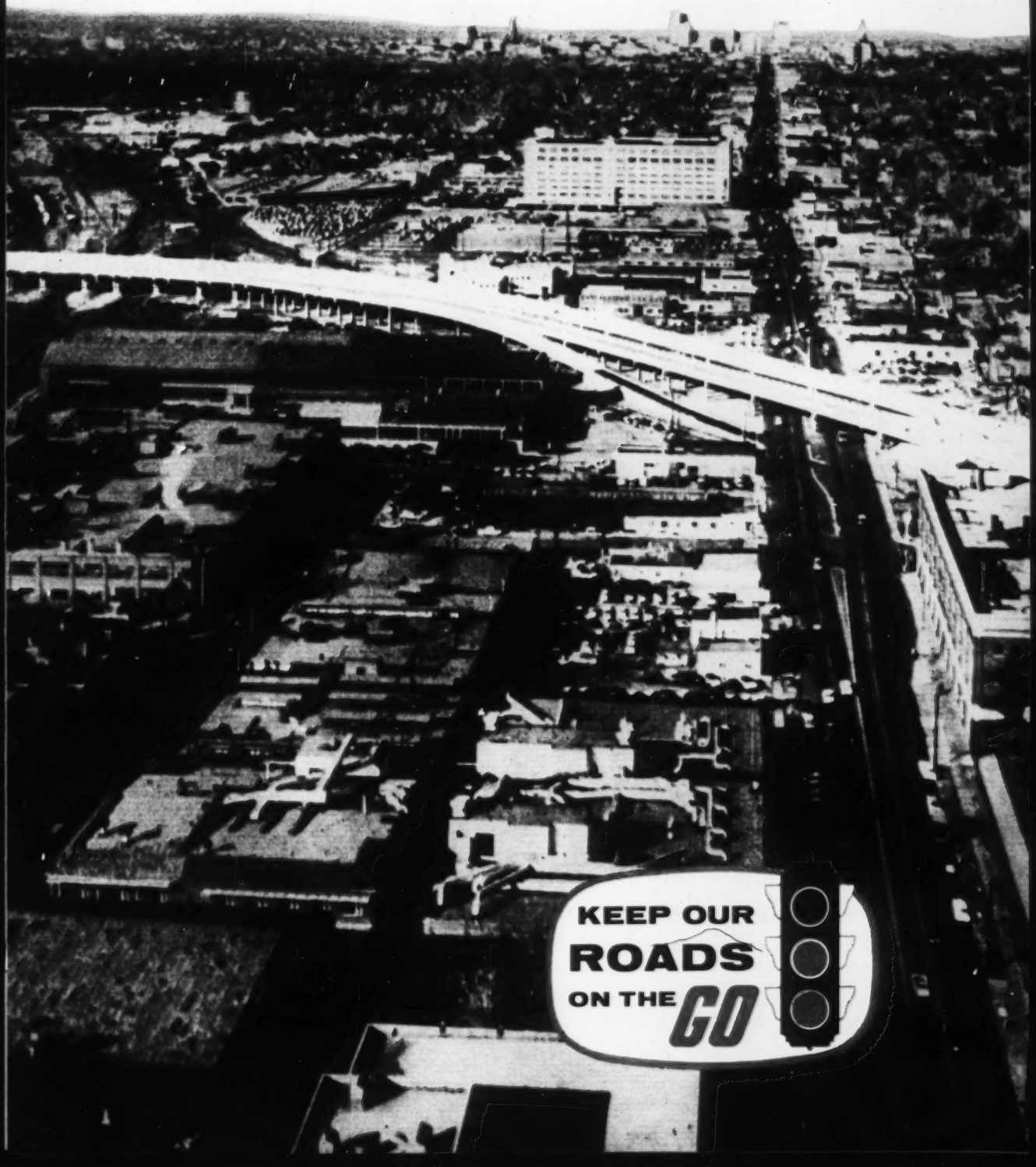
▲ **Socoven Co.,** Caracas, Venezuela, CA Est. $5,500,000, 4 story HOTEL, 2 swimming pools for Hilton Hotels International, Waldorf Astoria, New York 22, N. Y., B. W. I., TRINIDAD. Hotels Development Corp., Trinidad, B. W. I. Warner, Burns, Toan & Lunde, 414 Madison Ave., New York, N. Y., U. S. A., and Toto Ferrer, Puerto Rico, and Watkins & Partners, Port O' Spain, Trinidad, archts. Zumwalt & Vinther, Mercantile Dallas Bldg., 1807 Commerce St., Dallas, Tex., U.S.A., engrs. Bids about May 15. CD 4/10.

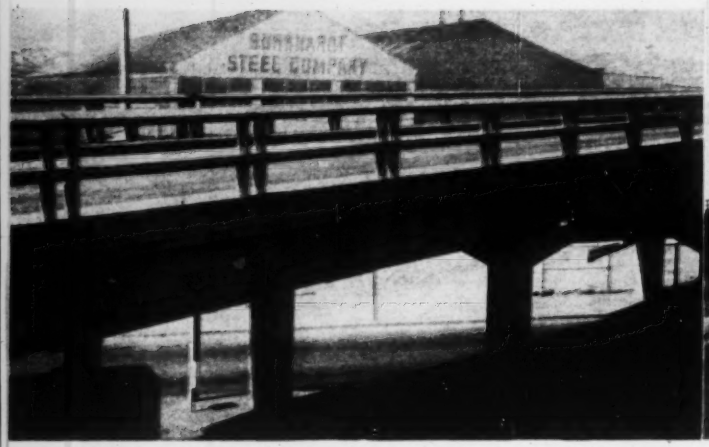
(Proposal Advertisement see pp 131 to 133)

Colorado rolls out 964 miles of Interstate Roads

Looking north on Broadway toward downtown Denver on skyline. Elevated section of new Valley Highway crosses center of picture.

Additional pictures on following pages..



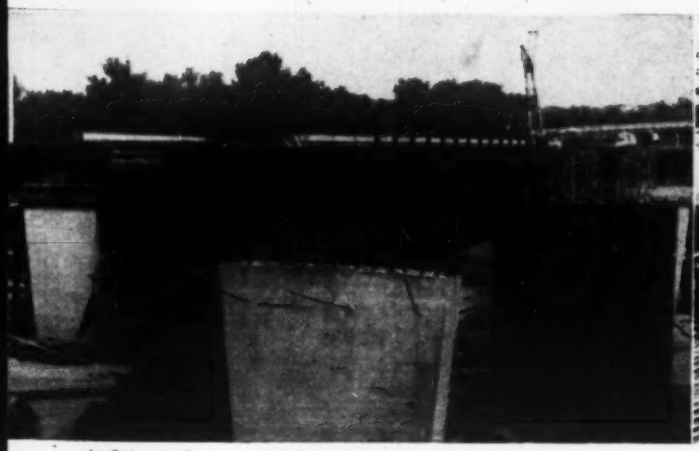


Section of structural steel elevated highway in Denver, connecting north-south Interstate Road with road planned from Denver into Utah. This road to the west crosses the rugged Rockies, requiring an exceptional number of bridges.

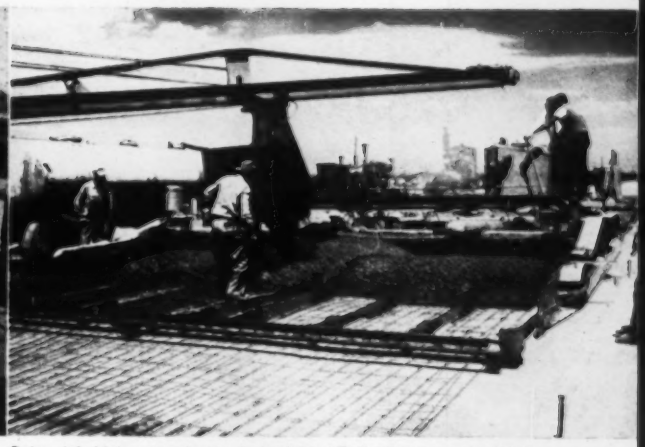
In busy Denver area, steel bridge construction provides maximum clearance on short span. Tubular light poles, bridge rails, and sign supports of hot-dipped galvanized steel provide long, maintenance-free service.

Colorado is building 964 miles of Interstate Roads

Workmen assemble steel girders on new 150-foot bridge near Pueblo where railroad crosses U.S. 85-87.



At Colorado Springs, this 393-foot bridge provides quick routing for four lanes of traffic through town on U.S. 85 and 87. Steel reinforcing bars in these tapered piers assure the extra strength needed in this construction.



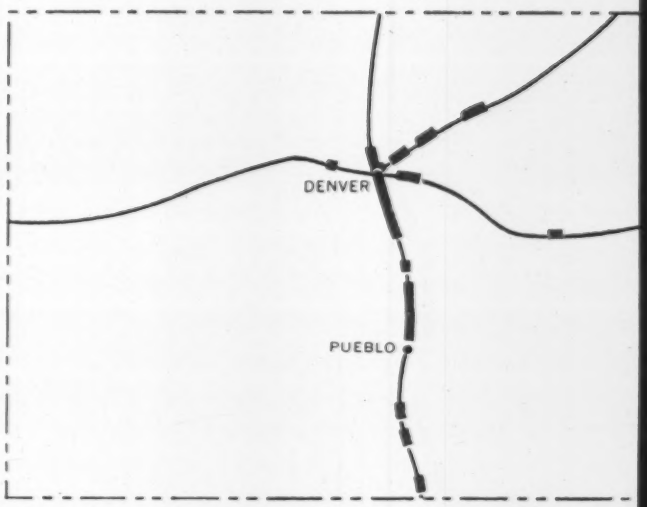
Colorado's highway engineers devised this efficient non-stop slip-form paver. In one continuous operation, it raises pre-joined strip of welded steel wire fabric to desired height, pours concrete through fabric and over it, levels the surface, forms a perfect edge with the moving edge-guide, and leaves behind an almost completed concrete highway.

with help of USS Highway Products

An impressive sight in Colorado these days is the explosive growth of first-rate roads. The Interstate Highway Program is in full swing. $324,300,000 in federal and state funds is being spent to construct 964 miles of new Interstate Highways and 5,200 new bridges. Already, more than 163 miles have been completed at a cost of about $20,700,000. The 8,433 miles of older roads in Colorado will receive a $2 billion modernization. Plans for the entire program are based on an expected 1975 traffic volume of 6½ million vehicles—over 3 times greater than present loads. This work is under the direction of Joseph J. Marsh, Chairman, Colorado Highway Commission, and Mark U. Watrous, Chief Highway Engineer.

United States Steel makes a complete line of highway products: Structural carbon steel, high-strength and constructional alloy steels for bridges; steel H-piles, sheet piling and tubular piles for bridge foundations; drainage products; cements for all types of concrete construction; slag, reinforcing bars and welded wire fabric; wire rope, cable, tubing and special steels for construction equipment; fence; beam and cable guardrail, steel for signs . . . and dozens more.

USS is a registered trademark



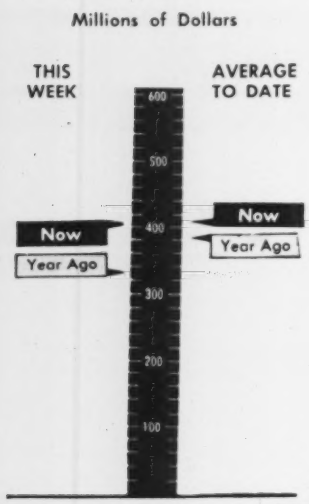
USS United States Steel

Write for the *free* 54-page booklet, "Keep Our Roads On the Go." You'll find all the United States Steel products and services that will help you cut costs and speed operations in highway construction. United States Steel, 525 William Penn Place, Pittsburgh 30, Pennsylvania.

The highway market is served by the following divisions of United States Steel: American Bridge Division, Pittsburgh, Pa.; American Steel & Wire Division and Cyclone Fence Dept., Cleveland, Ohio; Columbia-Geneva Steel Division, San Francisco, Calif.; Consolidated Western Steel Division, Los Angeles, Calif.; National Tube Division, Pittsburgh, Pa.; Tennessee Coal & Iron Division, Fairfield, Ala.; Universal Atlas Cement Division, New York; United States Steel Supply Division, Steel Service Centers, Chicago, Illinois.

Construction Scoreboard

CONTRACTS ...



AMOUNT OF CONTRACTS LET

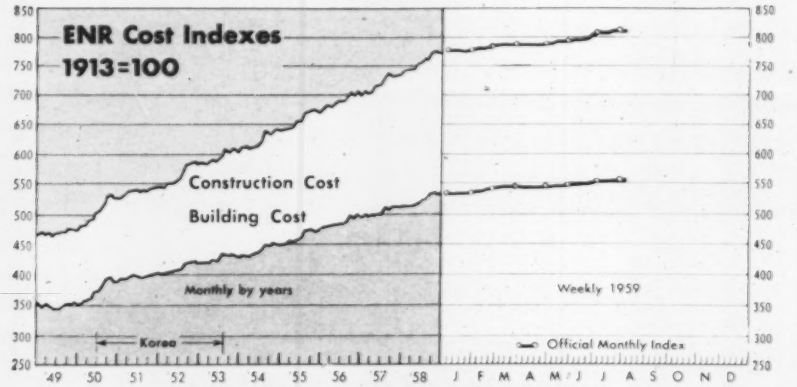
	Week This Week	Cum. 33 wks 1959	Chge '58-'59 %
	millions		
All Heavy Constr.	$412.4	$13,654.2	+ 5
By Ownership			
PRIVATE	230.2	6,622.9	+24
PUBLIC	182.2	7,031.3	− 8
State & Municipal	150.5	5,058.9	− 7
Federal	31.7	1,972.4	−10
By Type of Work			
PUBLIC			
Waterworks	5.4	277.2	+30
Sewerage	15.1	428.0	+11
Bridges*	9.5	532.2	+16
Highways	45.9	2,052.8	− 4
Earthwork, Dams & Waterways	16.1	597.2	−21
Buildings:			
Excl. Housing	58.0	1,752.7	0
Housing	1.0	464.1	−48
Unclassified	31.3	934.6	− 9
PRIVATE			
Buildings:			
Mass Housing	78.5	3,020.0	+19
Commercial	72.2	1,515.4	+22
Industrial	71.9	1,759.9	+40
Unclassified	7.5	320.1	+ 4

*Includes private bridges

NOTE: Minimum size projects included are: Waterworks and waterways, $53,000; other public works, $88,000; industrial buildings, $110,000; other buildings, $400,000.

CAPITAL . . .

New Capital For Construction	Week of Aug. 6	Cum. 32 wks 1959	Chge '58-'59 %
	millions		
Corporate Securities	$ 19.0	$2,441.3	−30
State and Municipal:			
All except Housing	162.6	3,971.4	− 4
Housing	....	75.2	+122
Federal Loans	2.1	92.0	−21
Federal Aid	....	18.0	....
Total Nonfederal	$183.8	$6,598.3	−15
Federal Appropriations:			
Projects in U. S.	$	$ 309.8	−64
Outside U. S.	....	1.5	−76
Total New Capital	$183.8	$6,909.6	−20



CURRENT COST INDEXES

ENR INDEXES (1913=100), 20-cities' average	Week of Aug. 6 1959	% Change from July 9 1959	% Change from Aug. 7 1958
Construction Cost	811.42	+0.4	+5.3
Building Cost	554.92	+0.4	+4.3

To convert above indexes to 1926 = 100: Divide Construction Cost by 2.080; Building Cost by 1.850
1949 = 100: Divide Construction Cost by 4.770; Building Cost by 3.518

CONTRACTS AWARDED

	1959 July (millions)	1959 7-Mos. (millions)	% Change from 1958 July	% Change from 1958 7-Mos.
Total U. S., ENR reported	$2,482.3	$12,830.1	+0.02	+ 6
Private	1,164.1	6,195.7	+42	+24
Public	1,318.2	6,634.4	−21	− 7
State and Municipal	982.8	4,732.8	− 3	− 6
Federal	335.4	1,901.5	−47	− 9
ENR Volume Index, 1913=100	671	582	− 5	+ 3

NEW CONSTRUCTION CAPITAL

Total U. S.	$1,252.4	$6,725.8	+10	−21
State and Municipal Bond Sales	674.7	3,883.9	+57	− 5
Corporate Security Sales	286.8	2,422.7	−54	−30
Federal Loans, Aid (nonfederal work)	17.9	107.9	−36	−10
Federal Appropriations (federal work)	273.0	311.3*	+616	−64

* Includes funds for outside U. S.

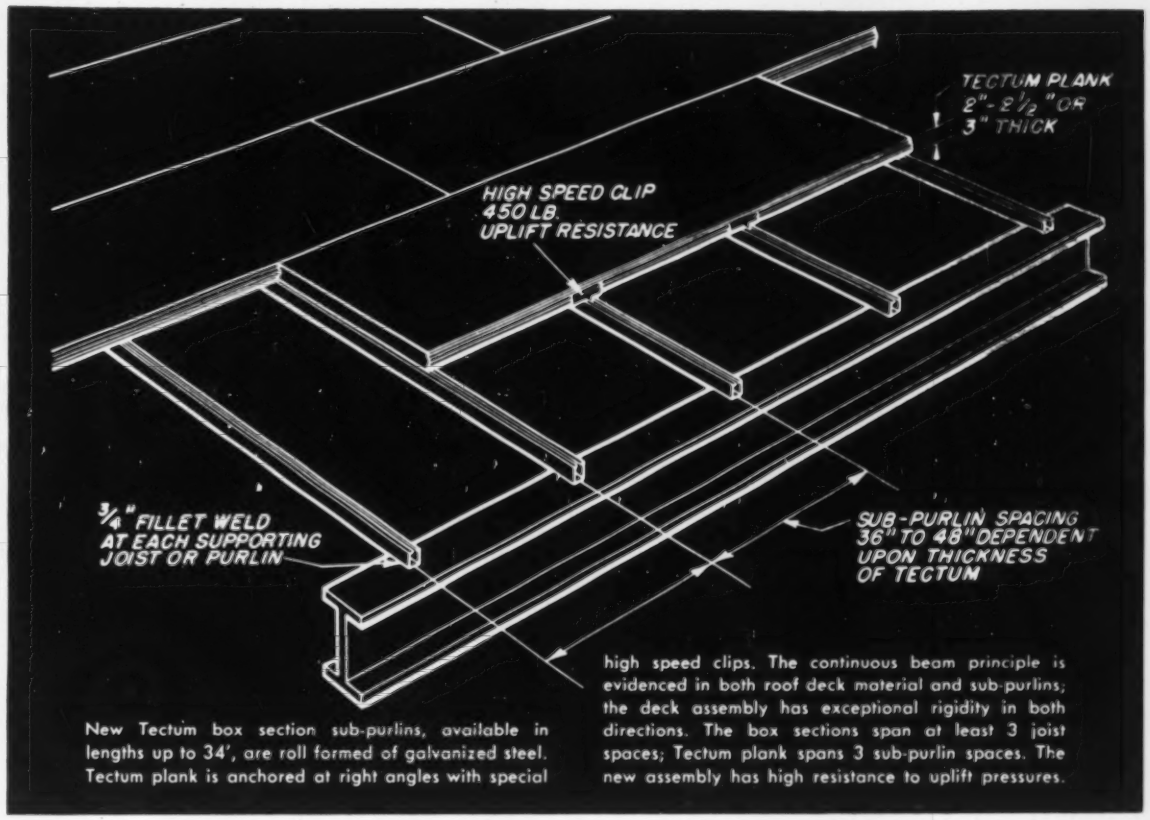
MATERIALS SHIPMENTS

	Unit	1959 Apr. (A) May (My) June (J)	1959 Cum. (No. of Mos.)	Percent Change from Year Ago Mo.	Percent Change from Year Ago Cum.
Portland Cement, Bur Mines	thous bbls	36,082(J)	151,421(6)	+19	+18
Conc Paving Awards, PCA	thous sq yd	10,070(J)	51,707(6)	− 9	− 5
Fabricated Structural Steel	thous tons	365(J)	1,651(6)	+11	− 4
Bookings, AISC	thous tons	291(J)	1,612(6)	+ 1	+28
Reinforcing Bars, Net, AISI	thous tons	346(J)	1,395(6)	+26	+38
Lumber, NLMA	mil fbm	3,217(J)	18,116(6)	+11	+11
Orders	mil fbm	2,958(J)	18,053(6)	+ 7	+11
Production	mil fbm	3,217(J)	17,712(6)	+12	+13
Clay Products, Bureau of Census					
Brick, Unglazed, Common, Face	mil bri	686.9(A)	2,038.3(4)	+20	+26
Vitrified Clay Sewer Pipe	thous tons	185.7(A)	540.3(4)	+29	+25
Structural Tile, Unglazed	thous tons	49.8(A)	162.7(4)	+ 8	+ 6
Asphalt Products, Bureau of Census					
Asphalt Roofing	thous sales sqs	1,749.5(My)	21,747.7(5)	−25	+ 6
Asphalt Siding	thous sales sqs	62.4(My)	347.1(5)	−32	+0.2
Aluminum, Wrought, Net, Bur Census					
Sheet and Plate (non-heat treatable)	mil lbs	126.2(My)	519.9(5)	+54	+44
Wire and Cable	mil lbs	28.5(My)	124.3(5)	+27	+16
Extruded Shapes (soft alloys)	mil lbs	82.6(My)	343.2(5)	+49	+39

EMPLOYMENT AND FAILURES

Contract Const Employment, BLS	thous	2,840(My)	2,505(5)**	+ 6	+ 1
Contractor Failures, Dun & Bradstreet					
Number		167(J)	1,042(6)	+ 1	− 8
Liabilities	thous	$8,519(J)	$56,178(6)	+15	− 1

**Average per month



New Tectum box section sub-purlins, available in lengths up to 34', are roll formed of galvanized steel. Tectum plank is anchored at right angles with special high speed clips. The continuous beam principle is evidenced in both roof deck material and sub-purlins; the deck assembly has exceptional rigidity in both directions. The box sections span at least 3 joist spaces; Tectum plank spans 3 sub-purlin spaces. The new assembly has high resistance to uplift pressures.

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a dynamic, new approach to roof deck design

Tectum Box Section Sub-Purlin, Roof Deck Assembly Applies 2-Way Continuous Beam Principle for Increased Rigidity, Faster Erection, Excellent Appearance and Lower Costs.

The combination of Tectum plank and the new, light weight box section offers unusual design flexibility. Openings between roof deck and joist suggest a variety of methods for installing sprinkler systems, electrical conduit, air conditioning and heating elements. Box section sub-purlins are galvanized for long life and reduced maintenance. The clean lines of the silvery sub-purlin and the random swirl pattern of the exposed Tectum present a most pleasing appearance.

The new sub-purlins weigh about half as much as conventional bulb-tees. The box section is priced considerably lower than comparable sub-purlin members and spacing between sub-purlins can be widened. Important savings are realized through lower sub-purlin costs, wider spacing, reduced weight and faster erection time.

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Standard high speed T-clips lock quickly into slotted box sections. Resistance to uplift pressures at the clip have been tested in excess of 450± at the clip, or 60 psf, meeting hurricane wind uplift ratings. Vertical load tests are certified by Pittsburgh Testing Laboratories and Ohio State University Engineering Experimental Station. Clips are completely enclosed at the plank joints — reducing thermal transfer through the roof deck.

Housing Bill Trimmed Slightly

- **Senate Housing Subcommittee slices $325 million from bill that President Eisenhower vetoed last month.**
- **Eliminated are provisions that would have stimulated the FHA and VA housing programs; retained are public and co-op housing provisions.**
- **It will be another tough veto decision for the President.**

—A modified housing bill started on its way through Congress last week. In a compromise effort to win Presidential approval, the Senate Housing Subcommittee rewrote the measure that President Eisenhower vetoed last month.

Congressional leaders decided to pass a new, revamped bill rather than risk an attempt to override the veto by a two-thirds majority vote in both houses. After seven days of hearings on the veto message, the Senate housing group recommended a revised measure that is far short of meeting Mr. Eisenhower's demands.

Few substantive provisions are discarded in the new version. But money authorizations for urban renewal and college loans, as well as new starts for public housing, are trimmed to make them less obnoxious to the President.

As submitted to the Senate Banking Committee, parent body of the housing group, the new bill would authorize a total of $1.05 billion, down $325 million from the vetoed version. Actual spending for the current fiscal year is estimated by the subcommittee at $28 million, as compared with $4.6 million under the long-range $1.76-billion package the President requests.

The Banking Committee plans to report the new housing bill to the Senate this week. From there on, the measure appears to have a clear track through both houses without major change.

The final package, however, seems sure to exceed the specifications Mr. Eisenhower has laid down—both in total dollars to which the government is committed, and in programs the Administration doesn't want at all. Hence, assuming Congress adopts something like the Senate group's first version, the President again may be faced with a tough veto decision.

Here's how the major items shaped up in the Senate subcommittee:

• **Urban renewal**—The Senate group would approve $550 million for capital grants to be available immediately plus $100 million additional that the President could use at his discretion to assist cities of less than 100,000 population. The vetoed bill called for grants of $900 million over two years; Mr. Eisenhower's request was for $1.5 billion over a six-year period, or about $290 million a year.

• **Public housing**—The subcommittee approved 37,000 new units. The vetoed bill called for 45,000 units. Mr. Eisenhower wants no new public housing authorizations.

• **College housing loans**—The new version authorizes $250 million at the existing low interest rate. The vetoed bill called for $300 million; the Administration budget asked for $200 million at market interest rates.

• **College classrooms**—The subcommittee has approved $50 million of low interest loans. The earlier bill called for $62.5 million. Mr. Eisenhower wanted no program at all.

• **Housing for the elderly**—The new version would authorize $50 million in direct loans, the same as the earlier bill. Mr. Eisenhower wants no such program, at least not now.

• **Co-op housing**—The new bill would authorize $25 million for purchase by Federal National Mortgage Association (Fannie Mae) of co-op housing mortgages. The vetoed bill called for $37.5 million. Mr. Eisenhower opposes any program.

On Federal Housing Administration insurance, the new bill approved by the subcommittee would boost FHA's authority by $12 billion for the period up to October 1961. The committee's purpose is to keep FHA coming to Congress when its authority begins to run out.

The bill the President vetoed had a complicated provision that would have provided as much as $10 billion in new authority to FHA. Mr. Eisenhower and his housing aides still seek to have FHA's ceiling on mortgage insurance removed entirely, leaving to Congress only the perusal of reports showing the current status of mortgage insurance outstanding.

The subcommittee adopted again the reduced down payment schedules for houses financed with FHA mortgages. Houses priced above $13,500 would be affected. For example, the down payment on an $18,000 house would drop from $1,380 to $855. President Eisenhower wanted no change.

The new bill also increases the maximum insurable mortgage on a single-family house from its present $20,000 to $22,500. The President wants the limit boosted to $25,000.

The Senate group granted its biggest concessions to the President by dropping from the substitute bill measures that could have had an impressive stimulating effect on the private mass housing market.

Eliminated were measures to:

• Extend the life of FHA and Veterans Administration home mortgages to 35 years. It's now 30 years.

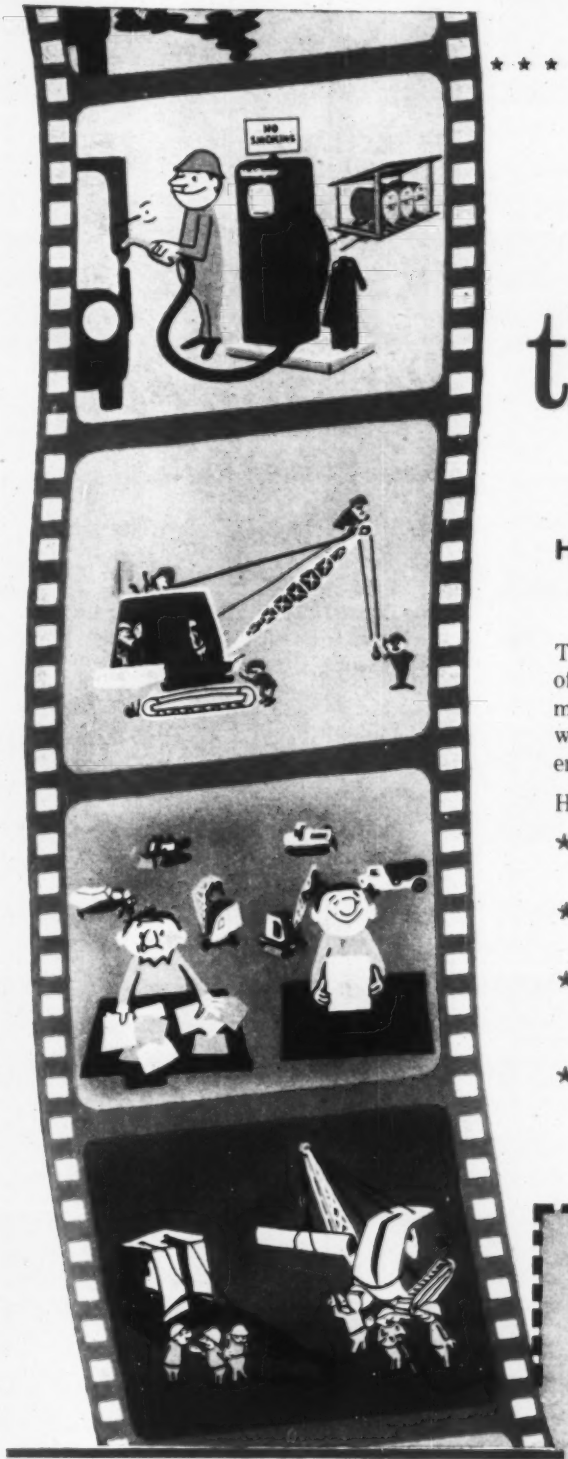
• Reinstate until September, 1960, the special assistance par purchase program of Fannie Mae. Under the program VA and FHA mortgages of $13,500 or less were bought by Fannie Mae at par. Sellers of these mortgages got in cash the full amount of the face of the loan, less small service charges.

• Grant Fannie Mae the authority to make short-term loans in areas where they are unavailable.

The last provision would have obviously made Fannie Mae a lending institution and brought the agency closer to being a central mortgage bank.

The provision would also have eased the difficulties encountered by homebuilders in obtaining construction loans. Builders in many areas now report that although they hold mortgage commitments, short-term capital is unavailable.

(B&F continued p. 119)



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Water-retaining capacity is the ability of a mortar to retain its moisture, and hence its plasticity, when spread out on porous brick.

High water-retaining capacity is of *great importance* in mortar. If the mortar does not have high water-retaining capacity, it is too quickly sucked dry by the brick; the mortar stiffens too soon, the brick cannot be properly bedded, and a good bond cannot be obtained.

Brixment mortar has high water-retaining capacity. It strongly resists the sucking action of the brick. Brixment mortar therefore requires less tempering, stays smooth and plastic longer when spread out on the wall. *This permits a more thorough bedding of the brick, and a more complete contact between the brick and the mortar.* The result is a better bond, and hence a stronger and more water-tight wall.

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The Debate Over 'Administered Prices'

While most of the nation has been grumbling about inflation, government officials in Washington have been choosing up sides in an effort to name the culprit responsible.

Republicans generally blame increases in wage rates that have outstripped gains in productivity. That is the view held by Raymond J. Saulnier, chairman of the President's Council of Economic Advisers.

But some leading Democrats in Congress argue that "administered pricing" and a grab for bigger profits are the cause of our creeping inflation.

The construction industry has more than a casual interest in this debate, for some of its sharpest cost increases in recent years have been in the prices of steel products and other items listed by economists as "administered."

"Administered pricing" has been in the jargon of economists since it was coined by Gardiner Means, then an adviser to Secretary of Agriculture Henry Wallace, in the 1930s.

The phrase describes prices that are set by management decision—and held firm for months or even years—as contrasted to the flexible prices that come out of day-to-day trading in a free market.

Current political interest in administered prices stems from the contention that they have gone up more in recent years than the prices that are identified with free markets. Also, most of the administering seems to be in one direction—up—with the prices rarely lowered when markets soften.

Gardiner Means, now an economist for the Committee for Economic Development (an association of prominent businessmen and educators), presented to Congress earlier this year a series of charts showing price trends in wholesale or primary markets for various products from 1953 to October 1958.

The biggest percent rise, by a wide margin, was for steel. Next was machinery, with construction equipment among the fastest climbers. Then came fabricated steel, rubber, nonmetallic minerals (including cement, flat glass and other construction materials) and paper and board products.

These are predominantly "administered price" products, according to Mr. Means. In some of the fields where prices respond more readily to market conditions—farm products and textiles—he found that prices were actually lower in 1958 than in 1953. This was true in most of 1958 also of lumber—one vital construction material where the market is relatively competitive and prices shift frequently.

This evidence was welcomed by leading Democrats such as Sen. Estes Kefauver (Tenn.) and Sen. Joseph O'Mahoney (Wyo.) because it seemed to narrow the inflation problem down to prices that are determined by "big business" and industries where a small number of companies dominate the field. Senator O'Mahoney is sponsoring a bill to require prior notice to the government before large producers can raise their prices.

The linking of these so-called administered prices to big business, and lately also to inflation, has given the expression a sinister, if not illegal connotation.

Yet Mr. Means says that 90% of all prices are administered. And most businessmen who set or follow such prices insist that they are indispensable to orderly business. They feel that buyers often prefer to have a price established for some period of time so they can better plan their own businesses with respect to costs, financing, purchasing and pricing. Frequent ups and downs in prices can create confusion and erode good will, they say.

The Sears Roebuck catalog is a good example of administered pricing. Catalog prices are set a season at a time and are usually unchanged until the next catalog is mailed out. Indeed, it comes as a great surprise to many people to realize that most retail prices are "administered."

Mr. Means himself has stated that "administered prices are an essential part of our modern economic system." Consumers and manufacturers alike would find their daily shopping and purchasing vastly more frenetic if prices were constantly changing on such items as candy bars, cigarettes, pencils, typewriter ribbons, paint—or postage rates.

It is not these prices, though, that are stirring up the fuss. It's the prices of some of our basic industrial materials and equipment, which have a farflung impact on the entire economy, like steel and machinery.

The construction industry is caught smack in the middle. For it is a heavy user of steel, construction equipment and building materials, which (except for lumber and a few others) are rated in the administered price category. But contractors sell public construction on the basis of competitive bids and, though to a lesser extent, bid competitively for private construction jobs.

The complaint directed at some of these administered prices, aside from the simple fact that they have been going up, is the way they are set. In determining prices, a producer must take into account the costs of wages and materials, depreciation of plant and equipment, interest, taxes and the prices of competitive or substitute products. But he must also make allowance for a reasonable profit.

Critics of rising administered prices contend that they have been pushed up too fast in an effort to fatten profits. Roger Blough, chairman of U. S. Steel, has frankly stated that his company has raised prices in order to widen profit margins. The steel industry argues that it needs higher profits to finance plant expansion and replacement programs because of rising costs of construction and equipment.

Steel company executives, moreover, have been particularly emphatic in insisting that their price increases of the last few years were long overdue.

Defenders of administered pricing also point out that these prices are often more flexible and competitive than they appear to be. When demand falls off, producers shade posted prices, absorb freight and offer other concessions. At the distributor level, trade-in allowances on such things as used construction equipment may be hiked, in effect cutting the list price of new equipment. Likewise, when supplies are tight, posted prices may remain firm—but users may have to pay bonuses or buy on "gray" markets. In retail markets, the former firmness of administered prices has softened under the blows of the discount house.

Often overlooked in Congressional criticisms of administered pricing is the fact that the government itself indulges in, or encourages, a good deal of administered pricing. Farm price support programs and a variety of other measures for propping the prices of nonferrous metals, petroleum, rubber and sugar are prime examples. Until it came under attack in the courts, "fair trade" legislation put a stamp of approval on the administering of retail prices by manufacturers.

The nub of the present controversy, though, is the contention of critics of administered pricing that this practice is being used to pad profits, thus boosting inflation.

The methods proposed for controlling administered price increases—in the hope of stemming inflation—do not propose putting an end to administered pricing. They merely propose giving government a hand in the administering.

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Big Market

Water resources awards may touch former peak

Divergent trends show up this year in ENR's first half construction contract awards for water development.

Waterworks contracts for the first six months were up 39.6%, to $219.6 million. But contracts for earthwork-dams-waterways were down to $430.3 million, 28.8% below the 1958 record half.

Regional differences also appear. Biggest gains in waterworks contracts were scored in the northeastern states and the South. But the regions West of the Mississippi showed big gains in earthwork-dam-waterway contracts, while the South and Northeast showed declines.

In the over-all picture, however, 1959 will go on record as the third highest year for water resources development contracts. It may even come close to the $1.35-billion record of 1958.

The Far West continues to dominate the waterworks construction market. And the $1.75-billion water development proposal for California will probably keep the region ahead for years.

The same plans will also keep the Far West in front of the earthwork-waterways construction market.

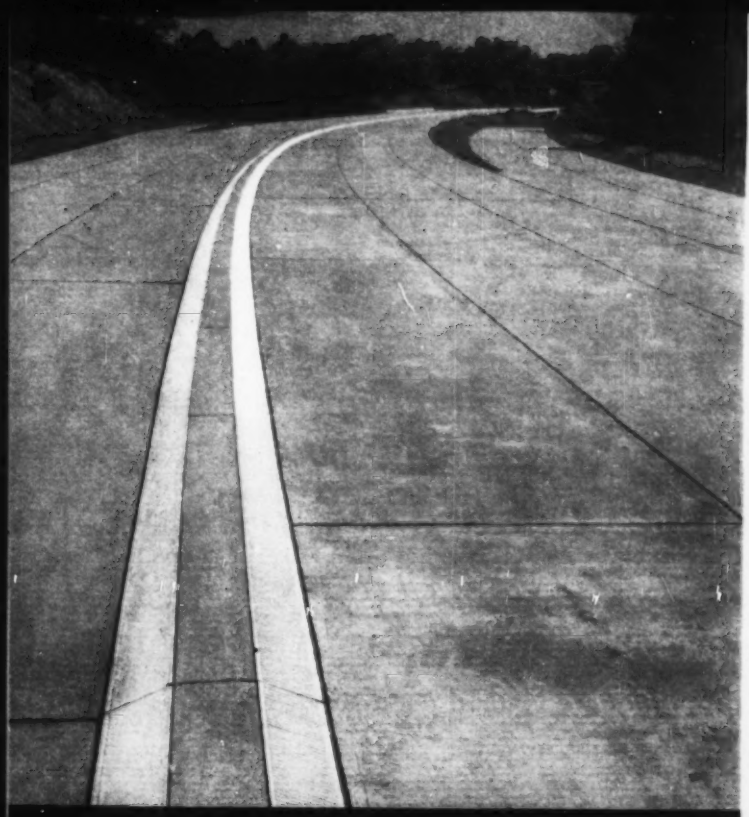
In fact, the $160.7-million, six-month total for the Far West understates the strong uptrend in that region; it doesn't include the $93.3-million Wanapum Dam contract let in July. But even without that figure, the Far West gained 64.3% over 1958's first half.

The Middle West and the region from the Mississippi River to the Rockies showed gains of 46.6% and 42.3%, respectively, in earthwork-dams-waterways. Dollar volume for the Middle West was $31.9 million and, for the Mississippi River to the Rockies, the total was $122.7 million.

The Middle Atlantic region, with volume of $44.9 million, dropped 85.1% from 1958's first half. New England dropped 74.3% to $7.7 million and the South lost 5.6% with $62.4 million.

Waterworks contracts tell a different regional story. New England, with first half volume of $21.9 million, was up 114.7%. The South gained 73.2% with awards of $42.3 million and the Middle Atlantic region picked up 66.8% to $32.1 million.

Gains were also scored by the Middle West, the Far West and from the Mississippi to the Rockies, but they were not as large. The Far West climbed 34.3% to $61.7 million. From the Mississippi River to the Rockies gained 8.1% with contracts of $41.7 million. The Middle West gained only 5% with contracts of $19.9 million.



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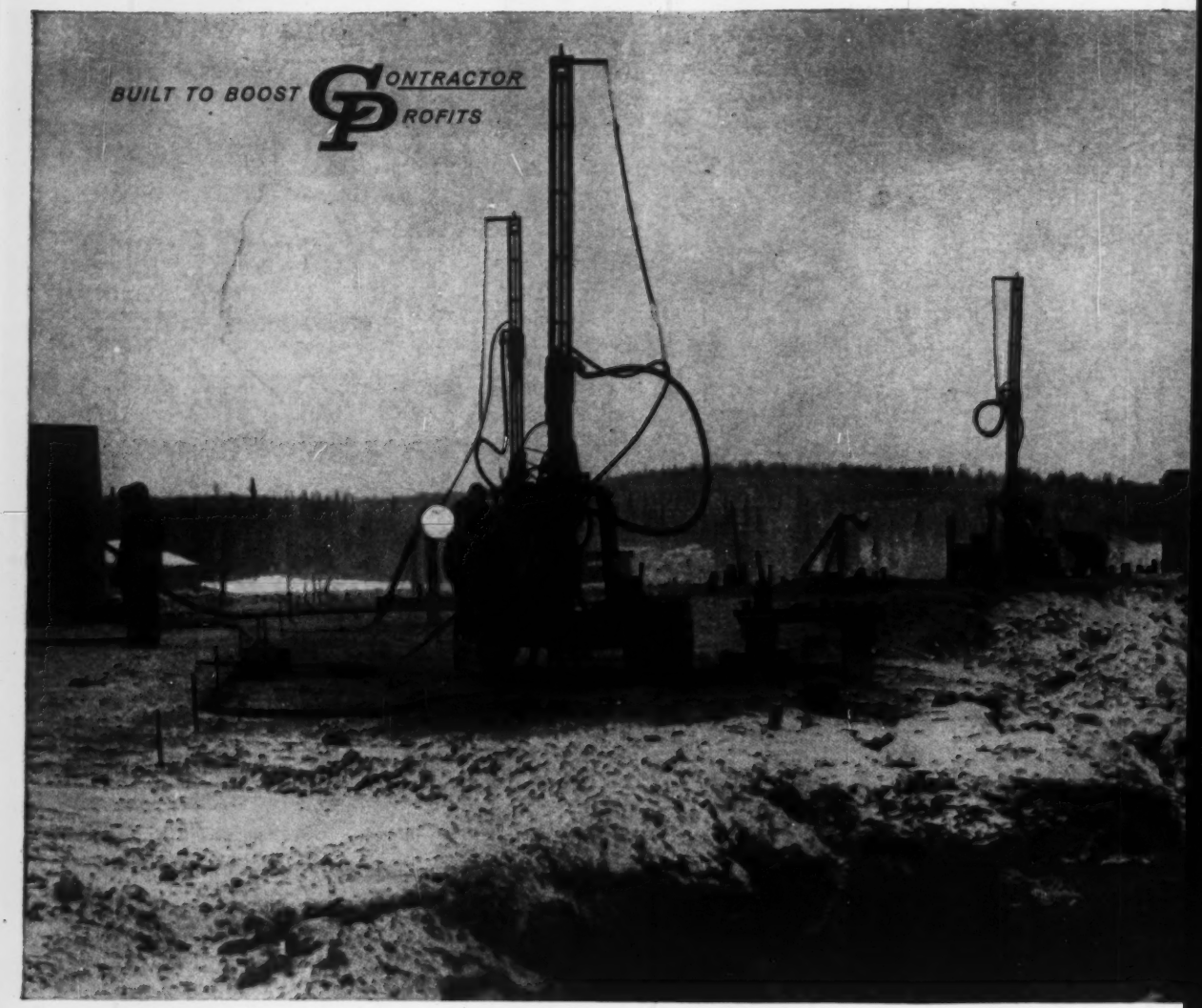

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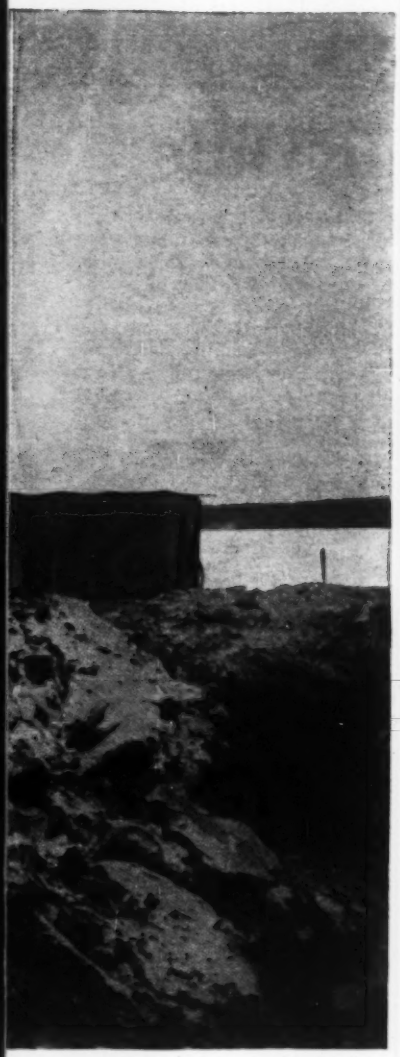

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No Holds Barred on Labor Bills

The House of Representatives this week plunged into the fiercest fight in a dozen years over the emotion-charged issue of labor reform.

The construction industry's stake in the outcome is a major one, for it may affect such factors as construction site picketing, pre-hire contracts and hot-cargo materials handling for years to come (see chart below).

The issue is being debated under an open rule that allows unlimited introduction of amendments and substitutes. But it narrowed down quickly to a choice of two bills: the Griffin-Landrum measure, which would outlaw all secondary boycott and hot-cargo practices of unions, and place strong curbs on organizational picketing; and the House Labor Committee's much less stringent Elliott bill, which contains a number of construction industry amendments endorsed by the AFL-CIO building trades unions but generally opposed by contractors.

The weakest measure of all, the AFL-CIO supported Shelley-Roosevelt-Dent bill, appeared at midweek to have little chance of success. Even its strongest supporters felt the best they could muster in its favor would be 150 votes —far short of what would be needed for passage.

The major issue is whether a deeply divided Congress will pass the first general labor bill as such since the Taft-Hartley Act of 1947.

In effect, there is not much difference to choose from among the bills on the cleanup issue. All provide essentially the same bill of rights for rank-and-file unionists, reporting and financial disclosure provisions, election safeguards and operations of trusteeship locals.

The Griffin-Landrum bill would, however, provide criminal penalties for use of force or violence to violate members' rights. The other two House bills allow only civil actions for court injunctions to bar continuation of such practices.

The House is so evenly divided on the issue that only a handful of votes is expected to make the difference on whether the Griffin-Landrum bill or the Elliott bill is accepted.

But Congressional experts rate the Elliott bill a slight favorite. That's because Speaker Sam Rayburn is wielding the gavel during the tricky parliamentary maneuvering and he favors the Elliott measure.

The racial issue may hold the key to the outcome of the maneuvering. Rep. Adam Clayton Powell (D., N. Y.) is planning to add an amendment outlawing union racial discrimination to any bill. Opponents of the Griffin-Landrum bill are trying to tack the amendment first onto this measure—a sure-fire method of killing it. Then with Mr. Rayburn in the chair, they hope to block its enactment on the Elliott bill and leave the House faced with accepting this bill or the still weaker Shelley-Roosevelt-Dent measure.

(*Labor continued p. 126*)

How Leading Labor Bills Compare on Construction Issues

The Issues:	Griffin-Landrum Bill	Elliott and Kennedy Bills	Shelley-Roosevelt-Dent Bill
Union representation—pre-hire and certification	Permits NLRB to certify a union in construction industry without first conducting an election. But union must have a history of collective bargaining with the employer.	Elliott bill and Senate's Kennedy-Ervin bill would allow pre-hire contracts and seven-day union shop for construction industry.	Same as Elliott bill.
Picketing at construction sites	Leaves unchanged the law that opens a union to a charge of secondary boycotts if picketing of a primary employer results in employees' refusal to cross picket lines to work for a secondary employer at the site.	Elliott bill specifically exempts building trades unions from any secondary boycott charges while picketing at construction sites. Kennedy bill does not.	Same as Elliott bill.
Employer contributions to apprenticeship, other funds	Specifically legalizes such contributions.	Both same as Griffin-Landrum bill.	Same as other three bills.
Secondary boycotts	Closes Taft-Hartley "loopholes" by prohibiting practically all secondary boycotts.	Make no other change in present secondary boycott law except for construction industry exemption.	Makes no other change in present law except for construction industry exemption.
Hot cargo	Would ban all hot-cargo agreements between employers and employees—extending this section not only to teamsters but to all employees.	Both bills would bar agreements between employers and truckers to sign hot-cargo contracts.	No changes in present law.
Picketing	Makes it illegal to engage in extortion picketing of an employer. Restricts recognition picketing under certain conditions.	Similar but less stringent than Griffin-Landrum.	Outlaws extortion picketing. Otherwise no changes in present picketing laws with the exception of building trades exemption at construction sites.
No-man's land	Would turn over jurisdiction to the state courts and agencies to handle labor disputes declined by NLRB.	Would require NLRB to take jurisdiction of all cases. Expand NLRB staff.	Same as Elliott bill.

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- ☐ H-8 Blue
- ☐ H-15 Green

What's Wrong With Bargaining?

- **Failure of the bargaining process shows up in Alaskan construction strike and in the deadlock in steel.**
- **Disregard for the law, hostility and uncompromising attitudes suggest a need for voluntary correctives.**

Current strikes in and out of the construction industry indicate to some observers that something's gone wrong with the process of collective bargaining, which was looked upon not long ago as the savior of industrial peace.

A present danger is that further governmental interference with the free enterprise system may become inevitable in the absence of voluntary action to improve either the climate or the process of bargaining.

Typical examples of the source of current concern are the virtual shutdown of the construction industry in Alaska and the silencing of 87% of the nation's steel industry.

Contrary to the spirit, if not the letter, of existing law, there has been no real bargaining since the strikes began. In both cases, the parties have exposed the bargaining process to outside interference. The steel industry has already conditioned its no-price-increase commitment on the absence of such intrusion in order to guard against this.

The Alaska stoppage centers around a wage dispute between the Alaska Council of Carpenters and the Associated General Contractors. Alaska Gov. William A. Egan calls it an "economic disaster."

The carpenters, who average $4.25 cents an hour, struck June 27 for an immediate pay increase of 50 cents an hour, free room and board on all bush jobs west of a line between Point Barrow and Kodiak and preferential hiring at the rate of five for the union to one for the contractor.

AGC had offered 60 cents in a three-year contract, or 53 cents in a two-year pact, plus a five-cent boost in health and welfare, travel pay when using own vehicles and alternative hiring clauses, including preference for Alaskans.

The strike halted some $65 million worth of military construction, and several million dollars of private construction work. Governor Egan said the state's economy has been dealt a blow "from which it will take years to recover."

Nearly a month after the strike began, however, the report from Alaska was this: "Neither the Alaska Chapter of Associated General Contractors nor the Alaska Council of Carpenters has made any attempt to bring about a resumption of talks."

Instead, the contractors started a National Labor Relations Board action against the union. The Anchorage Building and Construction Trades Council, seeing no possibility of settlement because of the nature of the union's demands, asked the AFL-CIO Building and Construction Trades Department to intercede. Governor Egan conferred with the federal mediator, unsuccessfully sought agreement to refer the dispute to an impartial board of citizens and even appealed to the men by radio to go back to work.

Last week, the strike was still on.

The deadlock is similar in steel, where management is insisting on a wage freeze or on a pay increase that can be covered by labor cost savings brought about by proposed changes in existing work practices.

There has been almost no bargaining since the strike began despite the presence of a federal mediator. The first 18 days of the strike passed with only one short meeting between labor and management.

Labor Secretary James P. Mitchell, the Presidential fact-finder, has implicitly accused both sides of refusal to bargain. "This," he said, "is no way to bargain. They can't reach agreement unless they talk to each other."

What does the law say about strike behavior of this kind?

The Taft-Hartley Act says the national labor policy is to promote industrial peace through effective collective bargaining. To achieve this end, it commands labor and management to engage in negotiations by meeting "at reasonable times," by conferring "in good faith" and by exerting "every reasonable effort" to reach a settlement. Refusal to do so is an unfair labor practice.

The law authorizes the Federal Mediation and Conciliation Service to step into labor disputes at its discretion. It orders labor and management, whenever they have failed to settle a dispute "by conference," to "participate fully and promptly" in any meetings set up by a mediator.

Even under the emergency provisions of the law, however, no one can force either party to make any concession or accept any proposal, and no board or official is empowered to recommend settlement terms. The law—except for the intangible force of the public opinion it generates—merely provides the oil for the machinery of voluntary settlement.

Some have suggested that the trouble, aside from the enforcement problem, lies not in the law but in the minds and attitudes of men.

One well-known mediator thinks labor-management hostility and the centralization of union power has deprived collective bargaining of both its "collective" and "bargaining" aspects. NLRB Chairman Boyd Leedom, who believes hostility breeds hostility, sees an "actual rejection by much of management" of the right of workers to organize and bargain collectively. And AFL-CIO's Walter Reuther senses a trend toward lip service only to the principle of collective bargaining and the generation "of the kind of climate where trying to be objective" at the bargaining table is difficult.

Mr. Reuther's suggested solution is some new voluntary machinery for getting labor, management and the public together periodically for informed discussions of common problems.

Such a development is now under way in the construction industry in the form of the Construction Industry Joint Conference. Although the public is not represented, conference policies are keyed to the interests of the public as well as to those of labor and management. There is no indication that the bargaining process as such has been put on the conference agenda, but a softening of unreasonable, hostile and uncompromising attitudes that cause some of the bargaining failures in the construction industry may be a natural by-product of the conference operation.

(*Labor continued p. 128*)

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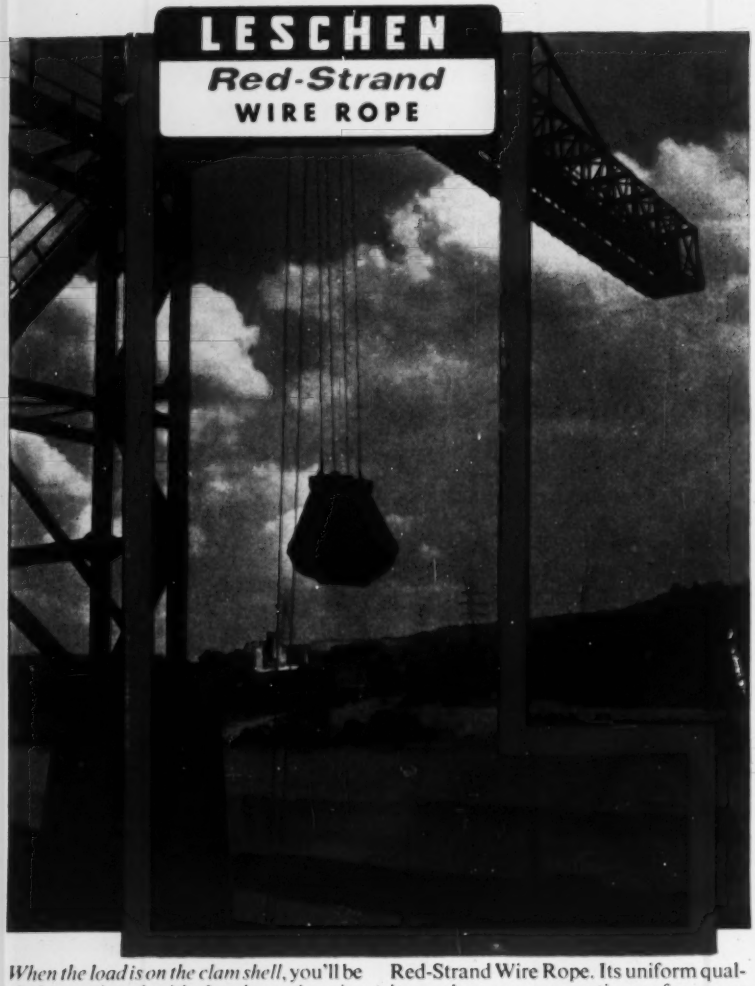

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State Adds Fringe Costs To Its Prevailing Wages

The concept of prevailing wages has been modernized to some extent in California. Commencing September 18, contractors bidding on public works projects within the state must include the cost of prevailing fringe benefits along with basic rates in the wages to be paid workers on the projects.

Sponsored by the AFL-CIO building and construction trades unions, the law will prevent nonunion contractors from getting a competitive advantage over union contractors of 35 cents an hour in labor costs. That is the amount now generally being paid in fringe benefits.

The new statutory language reads. "Per diem wages shall be deemed to include employer payments for health and welfare, pension, vacation and similar purposes. . . ."

Fringe benefit costs under the law will be included in advertisements for bids. The law applies to work performed for the state and for all its political subdivisions, such as counties, cities and school districts.

Author of the measure said its main purpose is to prevent out-of-state contractors not signatory to union contracts from gaining an advantage on some of the big jobs coming up under the state's multibillion-dollar water development program.

The new law accomplishes in part what the AFL-CIO building trades unions have been trying to obtain for the Davis-Bacon Act at the national level. They have asked for the inclusion of fringe benefits in prevailing wage determinations and for putting hours of work and overtime payments on a prevailing basis. H. R. 4362, introduced by Rep. John E. Fogarty (D., R. I.), includes these amendments.

Area-Wide Bargaining Is Western Teamster Goal

Officials of the Western Conference of Teamsters have urged the 262 local teamster unions in the 13 western states covered by the conference to give more thought to area-wide labor contracts that would establish uniform wages and working conditions for teamsters in the construction industry throughout the area.

While broad-area negotiation is a specific and basic aim of teamster policies, the union is thinking of reaching the point of area-wide or nation-wide contracts in terms of years, not months.

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being made in the Western Conference to achieve this goal.

In the meantime, the conference plans to conduct a series of surveys and a systematic exchange of information to pave the way to its objective. Said one union spokesman: The situation "will develop as things permit."

Some of the thinking behind area-wide contracts has been explained to members of the conference this way by George R. Purvis, secretary of the Building Construction Division: "A survey of what is going on, or in the blueprint stage, buildingwise emphasizes the point that the bulk of heavy construction is done by four or five big contracting firms which accept projects located, at times, hundreds, even thousands, of miles apart. Since employees on these jobs perform fundamentally the same kind of work, whether the project is in Albuquerque or Boise, it seems only proper that we negotiate contracts on an area-wide rather than a local basis."

Conference Chairman Einar Mohn supports this view but has given the idea a broader perspective. He has said the union "must perfect existing relationships with other labor organizations in the construction industry. Through such cooperation and the medium of area contracts we can accomplish our basic objective, which is organization and getting contracts that provide uniform wages and working conditions."

Teamsters Fail to Get Stay of Monitor Orders

U. S. Supreme Court Justice Felix Frankfurter last week turned down a teamster union request that the union not be forced to comply with the recommendations of its monitors until the U. S. Supreme Court has had a chance to review the legal issues involved.

This means that the monitor system for supervision of reforms in the union's operations remains in full force unless and until upset by the U. S. Supreme Court. Such an upset cannot occur until after the court begins its fall term.

The monitor system was set up by the Federal District Court in Washington, D. C. It was approved in principle but subsequently modified by the Circuit Court of Appeals.

Under the appellate ruling, the monitors can merely recommend reforms. The recommendations do not become legal commands unless specifically approved and adopted by the judge of the District Court.

The issue was whether the monitors could command, or just advise.

Lathers Claim Strike Is Justified

A jurisdictional dispute between lathers and carpenters over the placing of furring strips for installation of acoustical tile has created a situation that underscores the work assignment responsibility of contractors.

The dispute arose on a building project for Southern Bell Telephone & Telegraph Co. in Jacksonville, Fla. S. S. Jacobs Co., the general contractor, assigned the disputed work to three union carpenters, who are long-time employees. The lathers objected and induced other building trades workers to quit work.

An unfair labor practice charge was filed against the lathers by the tile company. The National Labor Relations Board regional director then went to the Federal District Court for an injunction against the lathers. The injunction has been granted.

The attorney for the lathers contended that the dispute had been settled in favor of the lathers by the National Joint Board for the Settlement of Jurisdictional Disputes on June 19. The NLRB attorney said the NLRB is not bound by the Joint Board's decision. The court agreed. The injunction prohibits picketing not only of the telephone building but of all other projects on which the tile company is engaged.

The developments to date reaffirm the NLRB policy of using its legal authority to halt jurisdictional stoppages regardless of the merits of a dispute without, however, upsetting decisions of the Joint Board. They do not solve the Joint Board's compliance problem where a union has a just protest and contractors do not conform work assignments to Joint Board decisions or to agreements of record.

In cases where contractors are subject to the Joint Board, noncompliance is a violation of the industry's basic jurisdictional agreement. All the Joint Board can do, however, is cite the contractor for noncompliance and ask the contractor's association, if any, to help secure "prompt compliance." The protesting union is meanwhile precluded by law from striking to get the assignment.

Labor in Brief . . .

• **Students transferred**—Twenty-five engineering students who got summer jobs with the Corps of Engineers in Alaska have had to be reassigned to Oregon and Washington jobs because of the carpenters strike that has paralyzed the Alaskan construction industry.

• **No relief for Glen Canyon**—Work on the $421-million Glen Canyon Dam project was still at a standstill last week because of a dispute over subsistence pay between the construction workers and prime contractor Merritt-Chapman & Scott. A hearing will be held this week to determine if the idled workers are entitled to unemployment compensation.

• **Protection under the law**—Plastering in the Hamilton, Ontario, area has been placed under the Industrial Standards Act, which means that all plasterers have to be paid a standard rate (now $2.75 an hour) and work standard hours (now a 40-hour week). Union plasterers also get eight cents an hour health and welfare. It's the second trade to come under the act—painting was first.

• **New man on Joint Board**—William H. Singleton, president of William H. Singleton Co., northern Virginia plumbing, heating and air conditioning firm, has been appointed by the National Association of Plumbing Contractors as a regular member of the National Joint Board for the Settlement of Jurisdictional Disputes. Mr. Singleton will also represent the Mechanical Contractors Association of America on the board.

• **Hiring hall bargainable**—National Labor Relations Board General Counsel Stuart Rothman has ruled a union may lawfully strike for the inclusion of an exclusive hiring clause in its labor contract if the clause meets the safeguards established in the Mountain-Pacific case.

• **First to affiliate**—The Engineers Association at Sperry Gyroscope Co. has voted two-to-one in favor of affiliation with Engineers and Scientists Guild—a proposed national federation of unions for engineers, scientists and technicians. It is the first union to do so. EA also approved the proposed ESG constitution.

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NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time, on the 27th day of August 1959, by Henry A. Cohen, Director, Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name
DISTRICT No. 7, R. W. Sweet, District Engineer, 144 Van Duzee Street, Watertown, N. Y.		
Greenville	OBA 59-6	Ogdensburg Bridge: Canadian Approach Roadway
Ontario, Canada		

Miles	Type	Deposit	Estimated Cost of Work
0.43	Asphalt Concrete, Type 1A Pavement Plans	U.S. $20.000 U.S. $5	U.S. $362.000

NOTE:—Plans and Proposals for Contract No. OBA 59-6 will be available at H. H. L. Pratley, Cons. Engineer, 909 Drummond Building, Montreal, Quebec, Canada and at Modjeski and Masters, Cons. Engineer, Forster at Sixth, Harrisburg, Pennsylvania, as well as the New York State Department of Public Works' offices listed.

Any projects in this letting that are on the Federal Aid highway systems are subject to the provisions of the "Federal-Aid Highway Act of 1956", being Public Law 627, 84th Congress, approved June 29, 1956, and are also subject to the applicable New Yorks State statutes.

In compliance with the provisions of Section 115 (Prevailing Rate of Wage), Public Law 627, the minimum wages to be paid laborers and mechanics are included in wage schedules that are set out in the bid proposal.

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "Information for Bidders" in the Public Works Specifications. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as Amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bond shall conform to the provisions of the Highway Laws, as set forth in "Information for Bidders".

The right is reserved to reject any or all bids.

J. BURCH McMORRAN
SUPT. OF PUBLIC WORKS

OFFICIAL PROPOSALS

Bids: August 27, 1959.

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, Canal Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A. M., advanced standard time, which is nine-thirty o'clock A. M., eastern standard time, on the 27th day of August 1959, by Henry A. Cohen, Director, Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 2, L. KETCHUM, District Engineer, 109 No. Genesee Street, Utica 1, New York						
Herkimer (Rte. 58)	R.C. 59-135	Utica-Frankfort, Pts. 1, 2 and 3, S.H. 5209-S.H. 159 and S.H. 14; Ilion-Frankfort, S.H. 5219	6.96	Asph. Conc. Type 1A Pavement	$12,000 Plans $5	211,000
DISTRICT No. 3, E. E. TOWLSON, Acting District Engineer, 333 E. Washington Street, Syracuse, New York						
Cayuga & Onondaga (Rte. 31)	R.C. 59-118	Port Byron-Weedsport, S.H. 5609; Auburn-Weedsport, S.H. 1317; Weedsport-Jordan, Pts. 1 & 2, S.H. 5654, 5630	8.87	Asph. Conc. Pavt	$16,000 Plans $5	276,000
Cayuga, Seneca & Thompson	R.C. 59-119	S.H. 1923, 454, 1878, 926, 5087, 1188, 8407, 1976 (Rte. 38), S.H. 687, 1175, 685 (Rte. 104A), S.H. 8247, 852 (Rte. 104), S.H. 1717, 1750 (Rte. 176), S.H. 614 (Rte. 38A), S.H. 1173 (Rte. 326), S.H. 5244 (Rte. 34B), S.H. 5012 (Rte. 34), S.H. 50-13 and 8519 (Rte. 90), S.H. 8363, 1921, 8386 (Rte. 89), S.H. 5282, 326, (Rte. 96-414), S.H. 616 (Rte. 96), S.H. 1189 (Rte. 327), S.H. 681, 682, 5214 (Rte. 13-392), S.H. 1433 (Rte. 222), S.H. 72, 338, 1431, 1004 (Rte. 79-330) and S.H. 5575 (Rte. 227)	....	Roadside Development	$800 No Plans Proposal $2	14,000
Onondaga (Rte. 31)	R.C. 59-120	Jordan-Baldwinsville, Pt. 2, S.H. 8107	3.86	Asph. Conc. Type 1A Pavt	$7,000 Plans $5	126,000
Onondaga	R.C. 59-121	S.H. 9045, 9047 (Rte. 173-20N), S.H. 9354 (Rte. 208Y) and S.H. 5587 (Rte. 5)	....	Roadside Development	$200 No Plans Proposal $2	4,000
Oswego (Rte. 57)	R.C. 59-122	Fulton-Three Rivers, Pt. 1 and Pt. 2, S.H. 5251 and S.H. 5276	4.27	Asph. Conc. Pavt.	$8,000 Plans $5	140,000
DISTRICT No. 4, B. F. PERRY, District Engineer, Barge Canal Terminal, Rochester 1, New York						
Monroe	M 59-8	Br. E-129 Church St., Town of Perinton; Br. E-144, Clinton Ave., Town of Brighton; Br. E-173 Gillette Rd., Town of Ogden and Br. E-175 Martha St., Town of Ogden	....	Clean & Paint. 4 Bridges	$800 Plans $10	15,000
Orleans	M 59-9	BR E-129 Brown St., Albion and Br. E-202 Gaines Basin Road, Gaines	....	Clean & Paint. 2 Bridges	$500 Plans $10	9,000
DISTRICT No. 5, E. G. H. YOUNGMANN, District Engineer, State Office Bldg., 65 Court Street, Buffalo 2, New York						
Cattaraugus, Erie, & Niagara (Rtes. 354, 78, 18, 17, 16)	R.C. 59-136	Br. No. 1, S.H. 371; Br. No. 3, S.H. 924; Br. No. 4, S.H. 1754; Br. No. 1, S.H. 1854 and Br. No. 2, S.H. 8086		Clean & Paint. 5 Bridges	$2,400 No Plans Proposal $2	44,000
Cattaraugus Chautauqua Erie & Niagara	R.C. 59-123	S.H. 9072, 9031, 1381, 8252, 9038, 9300, 1024 (Rte. 39), S.H. 1169, 9292 (Rte. 428), S.H. 1471, 1026 (Rte. 60), S.H. 5423, 5434, 5596, 5263A, 5217A, 5217, 5053, 5151 (Rte. 17), S.H. 1617, 1169, 9028, 1380A (Rte. 17), S.H. 8115, 8242, 1742, 8275, 8255, 1709, 1305 (Rte. 98), S.H. 8149, 5259, 9242, 8116 (Rte. 242), S.H. 1509 (Rte. 219), S.H. 48-15 (Rte. 353), S.H. 5220 (Rte. 62), and S.H. 263, 264, 5550 (Rte. 16-78)	....	Roadside Development	$1,000 No Plans Proposal $2	19,000
Chautauqua	C 59-13	City of Jamestown: North-South Arterial Highway (Washington St. Bridge)	0.04	Demolition of Buildings	$400 Plans $5	6,000
Niagara	M 59-7	Br. E-219 Wruck Rd. Town of Royalton; Br. E-224 Harrington Rd. Town of Lockport, Br. E-232 Pine St., City of Lockport and Guard Gate No. 17 Erie Canal Town of Royalton	....	Clean. & Paint. 3 Bridges and 1 Canal Guard Gate	$1,400 No Plans for Proposal $2	26,500
DISTRICT No. 6, J. H. THOMAS, District Engineer, State Office Bldg., 30 West Main Street, Hornell New York						
Steuben (Rte. 70)	R.C. 59-124	Big Creek, Pt. 3, S.H. 1000	1.59	Asph. Conc. Pavt.	$5,000 $35,000	88,000
Steuben (Rte. 54)	R.C. 59-125	Kanona-Prattsburg, Pt. 1A, Pt. 1B and Pt. 2, S.H. 1656, 1624 and S.H. 1474; Prattsburg-Italy Hill, Pt. 1, S.H. 1594	9.39	Asph. Conc. Pavt.	Plans $5	630,000
DISTRICT No. 7, R. W. SWEET, District Engineer, 141 Van Duzee Street, Watertown, New York						
DISTRICT No. 8, K. G. RALEIGH, District Engineer, Pleasant Valley Road, Poughkeepsie, New York						
Putnam	TSP RC 59-2	Taconic State Parkway Sects. 2 and 3	6.34	Asphalt Concrete Pavt.	$6,000 Plans $5	110,000
Westchester	R.C. 59-127	S.H. 9206, 84-56, 8457, 5361, 5361A, 5482, 9266, 9364, (Rte. 9), S.H. 20, 35, 5003, 5146, 5298A, 9273, 5464 (Rte. 22), S.H. 1015, 5226, 9247 (Rte. 120), S.H. 1456 (Rte. 119-120), S.H. 9256, 901 Pts. 1 and 2 (Rte. 120A), S.H. 148 (Rte. 118), S.H. 789 (Rte. 127), S.H. 5719 (Rte. 1), S.H. 331, 332 (Rte. 35-202), S.H. 9246 (Rte. 100A), S.H. 1167, 1053, 34, 52 (Rte. 9A), S.H. 519 (Rte. 117), S.H. 1570 (Rte. 100) and S.H. 645, 10, 134 (Rte. 125), S.H. 9254, 1308 (Rte. 141)	....	Roadside Development	$1,000 Plans $5	18,000
DISTRICT No. 10, M. E. GOULD, District Engineer, 325 W. Main Street, Babylon, L. I., New York						
Nassau (Rte. 27)	T.C. 59-4	Conduit Boulevard, Pt. 3, S.H. 1699A and S.H. 1699C; Conduit Boulevard, Pt. 4, S.H. 1699B, Conduit Boulevard, Pt. 3A, S.H. 1953	10.98	Furnish and Install Progressive Traffic Signal System	$13,000	236,000

Any projects in this letting that are on the Federal Aid highway systems are subject to the provisions of the "Federal-Aid Highway Act of 1956", being Public Law 627, 84th Congress, approved June 29, 1956, and are also subject to the applicable New York State statutes.

In compliance with the provisions of Section 115 (Prevailing Rate of Wage), Public Law 627, the minimum wages to be paid laborers and mechanics are included in wage schedules that are set out in the bid proposal.

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "Information for bidders" in the Public Works Specifications, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as Amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bond shall conform to the provisions of the Highway Laws, as set forth in "Information for Bidders".

The right is reserved to reject any or all bids.

J. BURCH McMORRAN
SUPT. OF PUBLIC WORKS

OFFICIAL PROPOSALS

Bids: August 27, 1959.

Reconstruction Work

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Canal Law and Highway Law, sealed proposals will be received, until 10:30 A.M., D.S.T. on August 27, 1959 by Henry A. Cohen, Director, Bureau of Contracts, 12th Floor, the Governor Alfred E. Smith State Office Building, Albany, N. Y. for:

Contract M 59-4 for Reconstruction of a Portion of the Apron and the Northeast Wing Wall of Pier No. 5 at Movable Dam No. 4, Lock 8-E, Town of Glenville, Schenectady County, New York
Engineer's Estimate for M 59-4 is $325,000.00

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts, 12th Floor
The Gov. Alfred E. Smith State Office Bldg., Albany, New York.
(b) Department of Public Works,
270 Broadway, New York City, New York.
(c) In addition to the above mentioned offices, plans, maps and specifications for Contract M 59-4 may be examined and obtained at the office of Mr. G. L. Nickerson, District Engineer,
353 Broadway, Albany 1, New York.

The deposit for Plans and Proposal Forms for Contract M 59-4 is $10.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Proposals for M 59-4 must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" in the amount of $17,000. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Canal Law and Highway Law as set forth in "Instructions to Bidders" in the contract specifications.

The right is reserved to reject any and all bids.

J. BURCH McMORRAN
SUPERINTENDENT OF PUBLIC WORKS

Bids: August 27, 1959.

New York State Road Work

NOTICE TO CONTRACTORS

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of Highway Law, sealed proposals will be received until 10:30 a.m. Advanced Standard Time on August 27, 1959, by Henry A. Cohen, Director, Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y. for:

SOIL EXPLORATIONS AND FOUNDATION INVESTIGATIONS AT VARIOUS SITES ON GOWANUS EXPRESSWAY, FOURTH AVENUE TO 92ND STREET, INTERSTATE ROUTE 512, PROJECT I-278-1 (43) 9, KINGS COUNTY, WHICH CONSTITUTES CONTRACT SPEC. NO. FA-SM-143.

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany 1, N. Y.
(b) Mr. M. E. Goul, District Engineer, New York State Department of Public Works, 325 West Main Street, Babylon, Long Island, New York.
(c) Mr. William Mende, Principal Building Construction Engineer, Department of Public Works, 270 Broadway, New York City.

The deposit for a set of plans, specifications and proposal forms is $5.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50 percent of deposit.

The Engineer's Estimate of cost for this work is $20,900.00.

Proposal for this contract must be submitted in separate sealed envelope with the name of the contract plainly endorsed on the outside of the envelope. Proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum of $2,000.00. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instruction to Bidders".

The right is reserved to reject any or all bids.

J. BURCH McMORRAN
SUPERINTENDENT OF PUBLIC WORKS

Bids: August 27, 1959.

Contract O & M-538

THE PORT OF NEW YORK AUTHORITY
PORT NEWARK
PAVING, RAMPS AND DRAINAGE

Sealed proposals for furnishing all labor, material and equipment for paving and drainage between Buildings 170 and 106 and the construction of ramps for Buildings 142 and 143 at Port Newark, New Jersey, will be received at the office of the Department of Purchase and Administrative Services of The Port of New York Authority, Room 900, 111 Eighth Avenue, New York 11, New York, until 11:00 A.M., Thursday, August 27, 1959, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Department of Purchase and Administrative Services, Room 900, and copies will be furnished upon deposit of $10.00 per set. Deposit must be delivered to Treasury Department, Room 1001, where a receipt will be issued. The receipt is then to be delivered to the Department of Purchase and Administrative Services, which will furnish the contract documents. The deposit will be remitted if the documents are returned in good condition, not later than thirty days after the opening of Proposals. The deposit will be forfeited if the documents are not returned within thirty days.

THE PORT OF NEW YORK AUTHORITY
S. Sloan Colt, Chairman

New York, August 13, 1959

READ THE OFFICIAL PROPOSAL COLUMN OF
ENGINEERING NEWS-RECORD
THIS WEEK AND EVERY WEEK

OFFICIAL PROPOSALS

Bids: August 19, 1959.

State of New York
Department of Public Works

NOTICE TO BIDDERS
Specification No. C. R.-188
Immediate
Sale of approximately 10.73 miles of track with miscellaneous material

1. SEALED BIDS will be received by Henry A. Cohen, Director of the Bureau of Contracts, Department of Public Works, The Governor Alfred E. Smith State Office Building, Albany, New York, until 2 P.M. Daylight Saving Time on August 19, 1959 for the following, viz: purchase from the State of New York of all of the track and materials generally identified in the specifications, and to be removed by the purchaser upon completion of construction of the railroad relocation of Delaware and Hudson River Railroad in the City and vicinity of Saratoga Springs, Saratoga County, and State of New York, being about 10.73 miles long.

2. Bids will be publicly opened and read at the place and time stated in the preceding paragraph which is numbered "1" herein.

3. Specification and proposal forms may be obtained in the Bureau of Contracts on the 12th Floor of the Governor Alfred E. Smith State Office Building, Albany, New York, or from Mr. Gordon L. Morse, the State's engineer on the project, whose address is Route 9-N, Saratoga Springs, N. Y., telephone Saratoga 517.

4. Each proposal must be made upon the form provided and must be submitted in the envelope provided therefor. The specification number must be written on the front of the envelope. The blank spaces in the proposal must be filled in, and no change shall be made in the phraseology of the proposal. Proposals that carry any omissions, erasures, alterations or additions may be rejected as informal.

5. The Superintendent of Public Works reserves the right to reject any and all proposals and may call for new proposals, if in his opinion the best interests of the State will thereby be promoted.

J. BURCH McMORRAN
Superintendent of Public Works

EMPLOYMENT NATIONAL COVERAGE OPPORTUNITIES

DISPLAYED RATE:

The advertising rate is $39.20 per inch for all advertising appearing on other than a contract basis. Frequency rates quoted on request.

An advertising inch is measured 7/8" vertically on a column—3 columns—30 inches to a page.

Subject to Agency Commission.

AUGUST 27TH ISSUE
CLOSES
AUGUST 17TH

UNDISPLAYED RATE:

$2.40 per line, minimum 3 lines. To figure advance payment count 5 average words as a line.

Position Wanted ads take 1/2 of above rate.

Box numbers—count as 1 line.

Discount of 10% if full payment is made in advance for 4 consecutive insertions.

Not subject to Agency Commission.

Send NEW Ads and Inquiries to Classified Advertising Division of ENGINEERING NEWS-RECORD, P. O. Box 12, N. Y. 36.

ADDRESS BOX NO. REPLIES TO: Box No. Classified Adv. Div. of this publication.
Send to office nearest you.
NEW YORK 36: P. O. BOX 12
CHICAGO 11: 520 N. Michigan Ave.
SAN FRANCISCO 4: 68 Post St.

• POSITION VACANT

Construction Manager—Growing General Construction firm located Northeast U. S. offers unusual opportunity to General Manager of experience and maturity. Applicant must have substantial background, both managerial and field in all types of building construction with proven background and labor relations, job coordinator, construction cost and profit making. Preferred age between 40 and 45 yrs. Firm is fully staffed. Present annual volume $12,000,000 to $15,000,000 and growing. Salary will be substantial with probable bonus. Participation in group life insurance, hospitalization and approved profit sharing plan. Apply only if fully qualified and deserving of high salaried position. Reply with full resume and expected salary to P-2118, Engineering News-Record.

Superintendent of construction for new institutional building on Long Island. Not over 45 years of age. Must be a producer and cost conscious. All trades including mechanical. Reply to P-2144, Engineering News-Record.

Construction Superintendent — Immediate opening for man of large experience as construction superintendent and administrator for erection of medical science building costing approximately $2,500,000. This is first phase of large college building program. Salary open. Company offers additional employee benefits of group life insurance, hospitalization and profit sharing plan. Reply with full particulars as to background, experience and expected salary to P-2122, Engineering News-Record.

Experienced Architectural Draftsmen. Excellent opportunity with established consulting firm in Middle West. State education, experience and required salary. Reply to P-1545, Engineering News-Record.

Growing General Contractor needs recent Engineer Graduates in Management Training program. Excellent opportunity for aggressive, ambitious men to work in south and southwest area. P. G. Bell & Co., Inc., P. O. Box 13126, Houston 19, Texas.

Assistant Professor: Civil Engineering Department of College of Engineering, University of Nevada requires an additional staff member qualified as Assistant Professor. Address inquiries directly to Dean of Engineering, University of Nevada, Reno, Nevada.

(Continued on the following page)

• POSITIONS VACANT
(Continued from preceding page)

Asst. Prof.—To teach undergrad. courses in transportation, surveying, and fluid mechanics. Salary open. Civil Eng., University of No. Dak., Grand Forks.

Sanitary Engineers—with at least two years' experience in design and development of sewerage and waste treatment systems or sewage treatment equipment sales, for customer liason assisting sales representatives. Location midwest and south central. Yeomans Brothers Company, 1999 N. Ruby St., Melrose Park, Ill. Fillmore 4-9600.

One senior mechanical engineer and one senior electrical engineer fully experienced in all phases design of mechanical and electrical respectively for all types of buildings. Mechanical engineer to have thorough knowledge of air conditioning design. Both positions permanent with established consulting engineering firm in south Florida. Send complete resume of education, experience and salary requirements. P-2260, Engineering News-Record.

Assistant City Engineer, Iowa City, Iowa. Starting Salary: $6000-$7200 per year dependent on individual qualifications. Degree in Civil Engineering. Qualifications for registration in the State of Iowa. Position will include general municipal engineering and administrative duties. Advancement assured for competent man. For information and application write City Manager, City Hall, Iowa City, Iowa.

Structural Engineer: Graduation from a four year college or university with major course work in structural engineering plus 3 years experience. Salary $6418-$7800 per annum. Complete details by writing to Director of Personnel, Municipal Building, Hartford, Conn.

Civil Engineer minimum 5 years experience highway design for established consulting firm. Location Washington, D. C. Submit resume. P-2270, Engineering News-Record.

General Superintendent, shift superintendents and concrete superintendents with extensive experience in concrete dams and powerhouse construction. Send complete resume with photograph and salary desired to Box 296, Main Post Office, Niagara Falls, New York, or telephone Butler 1-0192, Extension 10 for interview.

Foundation contractor requires young, enthusiastic engineer with some field and estimating experience to work in promotion of new contracts. Soils and piling background desirable. Middle Atlantic location. Send qualifications, salary requirements, availability to: P-2332, Engineering News-Record.

Wanted—Experienced Party Chief, licensed land surveyor preferred. Excellent opportunity with well known Consulting Firm in Illinois. State education, experience and required salary. Reply to P-2292, Engineering News-Record.

Graduate Civil Engineer with at least two years experience in layout of water mains, small pumping stations and filter plants. Send resume of experience, references, salary desired, date available to Gannett Fleming Corddry & Carpenter, Inc., Box 366, Harrisburg, Penna.

For a career in safety engineering, look into what we can offer as one of largest industrial insurers. Opportunities in several states for men with engineering degree or extensive technical education and accident prevention experience. Our men consult with managers in many industries on major strategy in accident prevention as well as on detailed recommendations. Technical ability plus capacity for working with people will pay off for you in this field, especially in this company. Write Personnel Department, Employers Mutuals of Wausau, Wausau, Wisconsin.

Experienced estimator wanted by Albuquerque, New Mexico firm, engaged in utilities and engineering construction. Permanent position, registered engineer preferred. Send complete resume, stating expected salary. P-2336, Engineering News-Record.

Engineer Draftsman Designer $4560-$6400. Start dependent on background. Prefer experience in streets-sewers. Civil Service, paid vacation and sick leave. 40-hour week. Beautiful city with tremendous development for 30,000 people. Write Personnel Director, Box 1431, City of West Palm Beach, Florida.

Wanted—A registered professional graduate Civil Engineer for Municipal Engineering work with a minimum of three years of experience covering road construction, drainage installations, earth moving, and estimating. P-2319, Engineering News-Record.

• POSITIONS VACANT

Director of Building Department—$6,300— $7,000. Inspection or similar experience, engineering training desirable, apply Homer Ball, Village Manager, Brookfield, Illinois.

Construction Superintendent CE Missouri, Arkansas, Georgia. Must be experienced in general construction, public works. Send resume, education, age, experience, references and salary desired. P-2295, Engineering News-Record.

Wanted: City Engineer with Municipal Experience for municipality of 40,000 people. Apply Commissioner Herbert D. Dailey, 155 Memorial Parkway, New Brunswick, N. J.

• SELLING OPPORTUNITY OFFERED

Established manufacturers representative wanted by national manufacturer for institutional equipment. Must have sales staff for architectural contact and bidding and have installation facilities available. In reply, please state lines now represented. RW-2320, Engineering News-Record.

• POSITIONS WANTED

Equipment-Superintendent—for overseas assignment period lots of foreign experience and a worker with ability. PW-2200, Engineering News-Record.

Construction Executive or Project Mgr. 25 years experience covers Concrete, Earth Dams, Power houses, Bridges, Tunnels and Marine Construction. Qualified to Estimate, Plan and Construct in the U. S., South Amer. and Middle East. PW-2271, Engineering News-Record.

Schools Construction Supervisor, Engineer, currently employed by Owners & Architects jointly, $9,600, on several schools but seeking change of location to California or Southwest. PW-2269, Engineering News-Record.

Dam Engineer 29 years on design and construction of hydroelectric and irrigation works. Both Federal and private agencies: overseas and domestic. Age 54, married. Desires management executive or administrative position. PW-2186, Engineering News-Record.

Pilot—Charter Pilot (29 years of age— married—three children) desires change to Corporation Pilot or Co-Pilot. 3500 hours flight time—Commercial License—Single & Multi-Engine—Instrument — Instructor ratings. Willing to re-locate. Resume on request. Roy F. Peacock—3821 Golden—Arlington, Calif.

Project manager or superintendent avail. now. Hiways and airports. Preferable dirt but can handle any phase of work. PW-2241, Engineering News-Record.

General Superintendent: Have been responsible for administrative direction of project operations, such as change orders, negotiations, sub-contractor coordination, contractor requisitions, handling of claims, prepare schedules and progress reports, complete charge of field personnel and buying job out. Age 38, married, will relocate. Have built 3 Nike sites, 2 hospitals, 5 MR-3A servicing docks, 1 factory, bridges, culverts, mass housing, well pointing, blasting and caissons. Supervised work in Fla., Ill., Pa., N. J., Conn., Alb., and Del. areas. Over one year in each state. Self-made-hard worker—I get results! PW-2218, Engineering News-Record.

Civil Eng'r—B.S. & M.S.—Age 28—Single. Permanent position. Foreign or Domestic. 4 yrs. reinf. conc. Design and detailed checking. Field work of Refinery and Bldg. Constr. Soil drilling Superv. and Seismic Surveys. Resume of Request. PW-2256, Engineering News-Record.

Construction Executive—Gen. Supt. Experience includes all phases commercial construction; job management, administration, subcontracts, purchasing, nation wide. Age 38. Can be available on six weeks' notice. Domestic or foreign. PW-2257, Engineering News-Record.

Chief Engineer Estimator Building Construction—Age 56, Graduate Engineer. Extensive experience, as Chief, assume full responsibility preparation of competitive bids, mostly public jobs. Handle usual office routine, have fine engineering background, seeks desirable connection. PW-2261, Engineering News-Record.

Construction Superintendent B.S.C.E. Hvy. earthwork, highways, flood control, 15 yrs. exp. bidding, estimating, supervising, now employed east, prefer west coast. PW-2167, Engineering News-Record.

• POSITIONS WANTED

Field Superintendent for construction of sewers, water, grading and concrete jobs. Age 47, no college degree, 24 years practical experience, ability to complete jobs from start to finish. Salary open. PW-2150, Engineering News-Record.

Project-manager, 20 years heavy construction. Top production. U. S. and foreign. PW-2163, Engineering News-Record.

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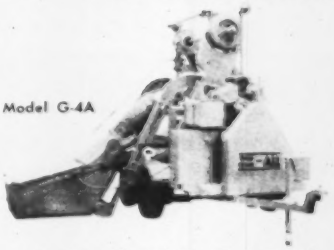

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Call for Compromise

CONTINUED UNWILLINGNESS in Washington to compromise on a financing method to keep the Interstate Highway Program rolling borders on irresponsibility. The White House, where resides the fearsome Eisenhower veto, has insisted on an increase in the federal gas tax so as not to increase further the public debt. The House Ways and Means Committee, where resides responsibility for originating money bills, has suggested temporary borrowing through bonds and temporary diverting of a portion of automobile excise taxes from the Treasury.

Meanwhile, federal-aid highway construction falters seriously as the states show inability or unwillingness to award further Interstate contracts without assurance of a continued high level of federal help. Damage to the road program will be inevitable and could become damage to the whole national economy if solution to the depleted Trust Fund problem is delayed much longer. And there is reason to fear it will be delayed until the last days of this Congressional session. Progress to date is most discouraging.

The disappointing initial finding of the House Ways and Means Committee, that the program should be cut drastically right now and stretched out four years beyond its planned 1972 completion date, was properly turned down by the Public Works Committee last week. It is Ways and Means' responsibility to raise revenues, not to order changes in enacted programs. This week, with the two committees working toward a compromise to match program and finances, it must be hoped that in the final House version of the necessary legislation the road program won't be penalized any more than it has been already by the delays in evolving a proposed solution. Then it must be hoped that this solution evolved is a sufficient compromise from the House committee's deficit financing stand to make it palatable to the powerful Senator Harry F. Byrd, chairman of the Senate Finance Committee and champion of pay-as-you-go. Then, finally, the finished Congressional product, the bill the President ultimately receives, must be so sound as to demand his signing it into law, even though it may not be precisely what he asked.

Bond financing has its disadvantages: It adds borrowing charges to the cost of the program and could add pressure to an already tight money market. An added federal tax on gas has its disadvantages; it moves the federal government deeper into the tax revenues most readily available to the states in financing their portion of the program. But some choice must be made.

The highway program must not be allowed to collapse. Responsibility for restoring its momentum weighs heavily on Washington. Action to revive the program and to insure that it be sustained at a high level is overdue. And time runs out. There must be willingness to compromise on how to finance this vital program—vital not to the construction industry alone, but to the entire nation, its welfare and economy.

Promotion Can Pay

IT WOULD BE HARD TO SAY how much the American Water Works Association's efforts have had to do with the current surge in waterworks construction, but at any rate the increase reflects one of AWWA's major objectives—"Do it now." Waterworks construction, measured by ENR's reported contract awards, is now about 30% ahead of what it was last year. Bond sales are gaining momentum. And the dollar volume of waterworks construction ought to hit $450 million in 1959.

For the years beyond that, it is significant to note AWWA is to get a strong hand in accomplishing its major aim of promoting construction of needed projects. This aid will come from the Water & Sewage Works Manufacturers Association, which is plunging into a public relations effort designed to promote the whole water service field—sewage works as well as waterworks. J. Walter Thompson, prominent New York City public relations and advertising agency, will carry out the WSWMA program. National in scope, it is intended to be pursued for long-range effect, and chances are that it will grow considerably as time goes on.

This is the kind of action that should produce results. With sewerage construction now having the benefit of a promotional campaign, and AWWA's commendable effort in the waterworks field also being bolstered by the same promotion, these vital fields should expand more nearly in accordance with needs than ever before.

TVA Gets a Break

LONG-SOUGHT LEGISLATION to let the Tennessee Valley Authority bond-finance an expansion program was finally signed into law last week (see p. 25). TVA is now free to start a $750-million expansion program.

Whatever else TVA has been through the years—social experiment, river developer, fertilizer producer—it is today predominantly an electric utility, federally owned. As such it has responsibilities not only to the taxpayer for repayment of his investment, but also to its service area for continued supply of power. The new legislation will permit a five-year expansion of steam generating stations which power users in TVA's area need. And the increased revenues from power that will follow should assure continued liquidation of the taxpayer's investment.

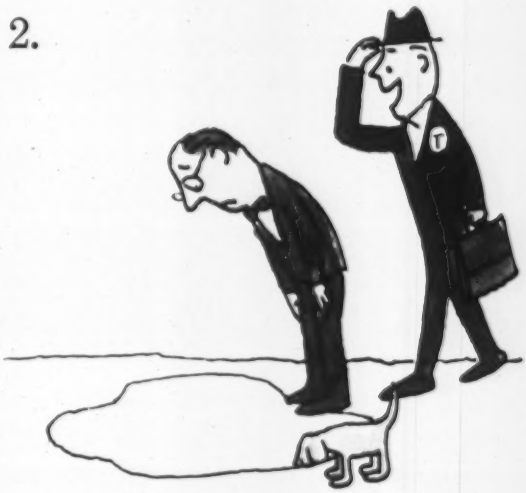
One of the nation's leading construction agencies in the past, TVA is now assured the funds for a future period of renewed construction activity.

How Bob's downfall proved a windfall

1.

Bob Taylor won the contract—'twas a much combated prize—
To dig an underground garage of vast, majestic size.
"Let's excavate to China," Taylor cried, "let's see 'em roll!"
"Yes, *sir!*" replied a foreman, then fell plunk into a hole.

2.



Poor Bob was glum as people come. A Travelers man heard all.
"Hereafter," he suggested, "let The Travelers take the fall,
For under Workmen's Comp and Public Liability,
When workmen or some passer-by gets hurt, we pay the fee.

3.

"But best of all, our safety engineers survey each site,
To find those hidden hazards and to help to set them right.
Statistics all confirm the fact that Travelers safety service
Reduces costs and accidents, saves you from being nervous."

4.

"Exactly what I need," cried Bob, "you don't have to cajole."
The excavation's going great. Bob won't be in the hole!
If *you're* about to build a road, a tunnel, bank or hall—
Secure the plan! Just give a trusty Travelers man a call.

NOTE: *Bonds, Equipment Floaters—Builders' Risk Insurance, too*
Are other ways The Travelers helps a contractor like you.

THE TRAVELERS
Insurance Companies
HARTFORD 15, CONNECTICUT

All forms of business and personal insurance including Life • Accident • Group • Fire • Marine • Automobile • Casualty • Bonds

Case® Terraload'r® digs without "bucking"... 16 Timken® bearings take the loads, buck costs

VERSATILE as a one-man band, this Case W-9 Terraload'r digs, maneuvers and dumps heaped payloads fast and easy. Its balance and stability enable it to do tough digging without "bucking". And it has up to 40,000 lbs. of crowding power for fast digging, a lift capacity of 11,000 lbs. To *roll* all the loads, give long bearing life, the Terraload'r has 16 Timken® *tapered* roller bearings at vital points: in planetary axle, pinion, differential, wheels, and rigid and steering axles.

Here's why Case and every major construction machinery manufacturer uses Timken bearings:

1) *They're tapered.* The tapered construction of Timken bearings lets them take any combination of radial and thrust loads. And they give *extra* load-carrying capacity because of full-line contact between rollers and races.

2) *They're Timken bearings.* Case and other companies know they get more for their money when they buy Timken bearings. More in service from graduate engineer-salesmen, more in research and testing facilities, more in quality. Timken bearings are made only from nickel-rich steel to make them tough. And we make it ourselves to be sure it's the best. Something no other American bearing maker does.

Timken bearings have been making construction machines better for 42 years. Make sure the machines you buy or build are equipped with Timken tapered roller bearings. They make good machines better. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ont. Cable: "TIMROSCO". *Makers of Tapered Roller Bearings, Fine Alloy Steels and Removable Rock Bits.*

This symbol on a product means its bearings are the best.

WHEN YOU BUY TIMKEN® BEARINGS YOU GET...

1. Quality you can take for granted
2. Service you can't get anywhere else
3. The best-known name in bearings
4. Pace setter in lower bearing costs

BETTER-NESS rolls on

TIMKEN®

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First in bearings for 60 years